A PROPOSAL TO RESTRUCTURE THE LONG-TERM CARE SECTOR IN THE ST. JOHN'S REGION OF NEWFOUNDLAND & LABRADOR

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A PROPOSAL TO RESTRUCTURE THE LONG-TERM CARE SECTOR IN THE ST. JOHN'S REGION OF NEWFOUNDLAND & LABRADOR

By

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ABSTRACT

There is a concern that there is a mismatch between the needs of the elderly and the level of care provided in long-term care (LTC) facilities. In 1991, the number of LTC beds per 1000 people over the age of 75 years in NF was the highest in Canada. Alternatives to institutional placement would be preferable for a multitude of reasons, including social, medical, and financial. The absence of data concerning the mismatch makes it premature to recommend plans for restructuring. A descriptive profile of residents of LTC facilities can help provide a foundation for current and future program planning. Describing the characteristics of the current and potential residents of LTC facilities provides a basis for confirming needs, identifying developmental priorities, establishing program objectives, and evaluating program outcomes.

The primary objective of this study is to assess the care requirements of institutional LTC residents in the St. John's Region and to determine actual and optimal population rates for institutional care. The LTC needs in the St. John's region were studied. All clients seeking placement in the institutional LTC sector for the year February 20/1995 through February 20/1996 were prospectively followed. Data on degree of disability for these clients was obtained prior to placement in LTC and at intervals following placement.

Mortality data on this incident cohort was collected following acceptance for placement in LTC as well as at yearly intervals after initial placement. Using this information as well as a search of the medical literature, the natural history of LTC residents was determined. A more accurate estimate for demand for LTC beds assuming an efficient system using an appropriate number of appropriate beds) was ascertained. A Decision Algorithm was developed, incorporating two objective, validated tools for assessing the need for professional nursing care

(RUG-III) and client disability (ARCS). The current needs and level of care of the inception cohort were assessed and compared with objective placement criteria as defined by the Decision Algorithm. By determining the natural history of LTC clients and incorporating predicted demographic trends, predictions for the number of LTC beds required in 2007 was determined.

36% of clients accepted for institutional LTC had no objective measurable disability as determined by RUG-III and probably do not require the resources of a NH. 43% of residents were found to have a moderate level of impairment, but 63% of these clients have cognitive impairment as their major reason for seeking LTC. If present methods of placement are continued, there will be a large deficit in SC beds by 2007. If objective criteria (Decision Algorithm) are used to determine appropriate placement and no alternative facilities to NH or SC are available, the deficit in NH will be decreased by 50%. If special facilities for the cognitively impaired are available, there will indeed be a surplus of NH beds.

Suggestions for change to the LTC sector in the St. John's Region are presented. A true single-entry system should exist and there should be consistency of assessors in determining placement into institutional LTC. Objective criteria should be used to determine appropriateness of placement, clients should be re-evaluated after placement and facilities should be case-mix funded. Alternatives to NH and SC should be available, especially for the cognitively impaired. This information can help provide a foundation for current and future program planning of LTC facilities.

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I. INTRODUCTION

1.1 BACKGROUND OF INSTITUTIONAL LONG-TERM CARE

Institutional long-term care (LTC) is expensive for both the individual and society (1). As Canada's aging population increases, there will be growing pressure for institutional beds and increased interest in reducing or delaying admission to an institution (2).

The structure and financing of LTC varies widely not only between, but also within countries (3). Rates of institutionalization do not correlate with the average age of a nations' population. In fact, Iceland, which is one of the 'youngest' developed nations, has one of the highest rates of institutionalization while Sweden, which is one of the 'oldest', has one of the lowest rates (3). Part of the explanation for differences in rates of institutionalization may result from different definitions of nursing homes (NHs), but such semantic differences do not completely explain the marked degree of variation (3).

In Canada, 8.4% of elderly people are institutionalized, compared with 5.1% in the United Kingdom and 6.3% in the U.S.A. (2,4). There is also variation between and within provinces in Canada (5). The Canadian health care system federally based, so both federal and provincial levels of government contribute financially to the LTC system; however, individual provinces are ultimately responsible for the delivery of health care services (6). Newfoundland in particular relies heavily on institutional (LTC). In 1991, there were 176 LTC beds per 1000 people $\geq$75 years in Newfoundland (the highest in the country) compared with the national average of 160 (7).

In anticipation of the growing population of frail elderly, several countries are in the process of reforming their LTC systems. There is a trend to change the purpose of NHs to provide mostly for clients with complicated care needs (3). Researchers worldwide are investigating how to correctly determine clients' needs and how to create instruments that can appropriately assess these needs (8). Methods of optimizing LTC placement criteria are being determined, alternatives to LTC are being explored, and many countries are expanding their community and home care services (3).

1.2 SINGLE-ENTRY SYSTEM IN CANADA

A 'single-entry' system has been introduced in several provinces to make the process of LTC placement more efficient and stream-lined. This system refers to a single point of entry to a range of LTC services, including both community and institutional, following an assessment by an interdisciplinary team (9). In 1988 The Canadian Ministry of Health and Welfare reported the key benefits of a single-entry LTC system:

1. Clients have access to a full range of options, including community and institutional LTC.
2. Since the interdisciplinary assessment team reviews all client applications, the most appropriate LTC services are put in place. Consequently, institutional placement is not automatic; it is avoided or delayed unless necessary.
3. Clients and their families who request help need not undergo the additional stress of having to have separate evaluations by different assessors when they require NH admission (10).

4. A significant portion of clients assessed for LTC placement have been receiving community care services and are therefore already known to the community care staff (11).
5. Access and priority criteria are applied consistently, so that what clients need, instead of other factors (such as where they live), determines the type, level, and location of service delivery (10).

1.3 INSTITUTIONAL LONG-TERM CARE IN CANADA

1.3.1 St. John's Region

The St. John's Region of Newfoundland and Labrador is the most populated of five health regions in the province (Appendix A). The region has approximately 1400 LTC beds, divided into nursing homes (NHs) and personal care homes (PCHs).

NH residents generally need the regular care of professional nurses. However, some facilities, especially in St. John's, also admit clients with lower level care needs. All the NHs are publicly funded and are operated by a combination of public and private non-profit organizations. Unlike some other provinces (12), their funding is not strictly case-mix adjusted.

PCHs provide room, meals, 24-hour supervision, and minimum personal assistance and a few other services. They do not provide any medical or nursing care and cater to more independent clients than do NHs. PCHs do not employ high-skilled staff (ex. Nurses), as NHs do, but attempt to provide a more home-like environment. The PCHs are private, almost entirely for-profit facilities. Many PCH operators receive government subsidies for some or all their beds.

LTC beds in the province are assigned a level, one through four, defined by the Department of Health (Appendix B) . Level 1 refers to the lowest level of care requirements, and Level 4 to the highest, or heaviest care needs. PCHs consist of only Level 1 beds, whereas NHs can contain beds of all four levels. Supervised Care (SC) is a term that refers to all Level 1 beds, whether they are located in PCHs or NHs. 116 of the 334 SC beds in the St. John's Region are located in NHs. There are no alternative facilities to PCHs or NHs in the Region.

The Department of Health levels of care are made partly to sort clients of different levels of need into appropriate settings and facilitate regulation of quality (13). However, these levels of care are cumbersome, fairly subjective guideline and therefore not always strictly adhered to. When a client in the St. John's Region applies for institutional LTC, their application is reviewed by the multi-disciplinary Community Health assessment panel. The panel then deems clients as being most appropriate for either SC or NH placement. No objective criteria are used to determine clients' actual needs for LTC and no alternatives to institutional LTC are explored. Community services are available, but clients need to apply differently.

Therefore, the so-called 'single-entry' system really only refers to single-entry access to institutional LTC, not single-entry to all LTC options, as was originally defined and as is used in other provinces (see Sections 1.3.1.1 and 1.3.1.2).

1.3.1.1 Single-entry system in the St. John's Region

The single-entry system was implemented in the province of Newfoundland and Labrador in 1995 by the Department of Health and Community Services. Before

implementation of this system, clients applied separately to each individual facility of their choice. Each facility then made its own independent assessment and decided whether or not to place the client on their waitlist.

The current assessment process is designed to identify the nature and extent of functional abilities, the degree of informal support available, and the applicant's financial circumstances. As previously stated, the St. John's Community Health Placement Committee does not deny an applicant institutional placement if it has been requested and no alternative care options are pursued.

For clients eligible for provincial subsidization, the panel considers this information when determining the services to be provided. A client may express a preference for placement in a particular facility and may not be required to accept another earlier placement if their choice of facility is not currently available. There is one exception to this in the St. John's region. Clients waiting in an acute care bed for institutional LTC are transferred to a transitional unit, and if the facility of choice is not available during this time, the client is transferred to the first available facility that can provide the care they require.

1.3.1.2 Shortcomings of the single-entry system in the St. John's region

The system in Newfoundland is not a true single-entry system. Clients in Manitoba, for example, apply for support services and are assessed by their level of needs in order to determine the LTC services or facilities which best serve them (14). In the St. John's region, however, clients either apply for home supports or for institutional LTC. As a result, there are actually two potential entry points rather than one.

The single-entry point system for LTC has been shown to reduce the ratio of NH beds to clients and significantly reduced NH use without increasing institutional care waitlist times (14). The single-entry system has also been shown to be cost-effective in other provinces such as New Brunswick (15).

Therefore, a single-entry system offers several benefits to both clients and society. However, since the system in Newfoundland is not really true single-entry, the advantages that a true single-entry system confers cannot be extrapolated to the system in our province.

1.3.2 Background of LTC elsewhere

1.3.2.1 British Columbia

British Columbia has a single-entry system referred to as the Continuing Care system, which integrates both institutional and community services into one continuum of service delivery (5).

The Continuing Care Division is divided into three branches: the Long-term Care Program, the Community Home Care Nursing Program, and the Community Rehabilitation Program. Referrals can be made by anyone including a health professional, family member, or friend. Once a referral is made, health care professionals (known as Assessors) in that program review the referral and determine if needs are met. The Assessors maintain the waitlists and notify facilities of who the next eligible client is. This stops the potential practice of facilities selecting clients who are the easiest to manage, or those who need fewer services.

Institutional LTC is categorized into personal care or intermediate care/extended care (divided into four levels of increasing care needs).

As alternatives to institutional LTC, there are Group Homes, which are independent private residences. However, clients of these Group Homes may be physically or mentally disabled and most clients in these homes are disabled younger adults rather than the frail elderly.

There is a waitlist for LTC, which is based on first-come, first serve system. No distinction is made regarding where the client is residing at the time of the assessment (i.e. an acute care hospital or his/her home).

Once a client is placed in a LTC facility, there is regular review of client needs so that as client needs change, care plans are adjusted .

In a survey conducted in 1987, clients receiving services, both in facilities and in the community, as well as friends and relatives of clients, typically stated high levels of satisfaction with the services provided in the British Columbia LTC system(5).

1.3.2.2 Alberta

There is a single-entry system in Alberta. The province has been focusing on shifting more toward community care from institutional LTC, as can be witnessed by Alberta's home care budget, which has increased over 300% since 1990 (16).

The Alberta Resident Classification System (ARCS, see Section 3.2.2) was implemented in 1988. The ARCS is used to measure the care requirements of clients in LTC facilities and to provide information of client case-mix so that funding can be based on client needs(17).

1.3.2.3 Saskatchewan

Saskatchewan has had a single-entry system for LTC since the mid-1980's. It is used to access long- and short-term programs, both in the community and in institutions. Institutional LTC is divided into special-care homes, which care for higher level clients, and personal care homes, which care primarily for lighter care clients. (18)

The Saskatchewan Client Information Profile (SCIP) was introduced in 1994 as the assessment instrument used to determine the appropriateness of LTC placement. Some health districts have almost eliminated waiting lists for special-care home placement. In 2000-01, the MDS/RUG-III was introduced as an assessment/classification system. (18)

Home care funding in the province has increased 165% between 1991-2 and 2001-02, in order to assist clients to remain living at home. (18)

1.3.2.4 Manitoba

In 1974, Manitoba was the first province to incorporate the concept of a single-entry system into its LTC system (14). A panel assesses both the need for community care services and the need for institutional LTC. The continuing care program maintains a central registry, which lists all home care recipients and NH applicants.

Since the implementation of single-entry, the ratio of NH beds per 1000 population aged 65 years or older has been reduced from 67 beds/1000 in 1974 to 57 beds/1000 in 1990-91. Several provinces have reported a significant reduction in NH use with implementation of a single-entry system (14).

As in other provinces, the 1990s have been a decade of reform for the province of Manitoba. Regionalization of healthcare has resulted in 13 health regions, the largest of which is the Winnipeg Health Region. LTC in this region is served by The Winnipeg Community and Long Term Care Authority (WCA) which was established in 1998. At that time, the single-entry system was re-evaluated and revised to make it more efficient. Changes to the system included changing the timing of panel meetings for evaluation of clients from every month to meetings that are set up within 72 hours of client application for LTC. Since the inception of this newly efficient single-entry system in 1998, an average of 35 hospital patients are placed each week as compared to 4 per week in the previous years. The number of acute hospital patients awaiting home care has been reduced by 50% and the number of PCH eligible clients in acute care hospitals has been cut from 259 in 1998 to 87 in 1999 (19).

LTC options available in Manitoba are:

- Chronic care beds
- NH beds
- PCH beds
- Assisted Living/ Supportive Housing (see 7.3.1)
- Companion care. Companion care homes are an alternative to PCH placement; private homes owned by an individual who is qualified to function as a companion care provider. This program has been successfully introduced in Edmonton, Montreal and Calgary (20).

1.1.2.5 Ontario

The Ministry of Health funds and monitors approximately 500 LTC facilities in Ontario. LTC options are:

- NHs (operated by both non-profit and commercial organizations)
- Municipal Homes for the Aged (non-profit, operated by municipalities)
- Charitable Homes for the Aged (operated by non-profit organizations)

All facilities must comply with standards described in the LTC Facility Program Manual. Alternatives to LTC facilities in Ontario are neither licensed nor regulated by the provincial government. These alternatives include retirement homes, apartment hotels, seniors apartments and boarding homes (21).

Payments are made to LTC facilities based on a resident needs-based formula (ie. Case-mix adjusted). Ontario mandated the use of the Minimum Data Set (MDS) 2.0 in July, 1996, for the assessment of all patients in chronic care hospital beds (22) (see 3.2.1). issues related to training and implementation have not received sufficient attention in Ontario (22).Prior to the adoption of RUG-III in Ontario, the Alberta Resident Classification System (ARCS) was used since 1991 to allocate funding for NHs and homes for the aged (22).

1.3.2.6 New Brunswick

A single-entry system was established in N.B. in 1993/94 (15). It is defined as a system that determines whether a NH, home care, or other alternative community-based alternative is the most appropriate setting for an elderly client. A multidisciplinary assessment team assesses each client who requests or is referred for assistance.

Reassessment every six months is mandatory for each senior who enters the single-entry program (23).

A pilot project was done over 12 months in 1989/90 in order to determine the feasibility of a single-entry system. The project found that not only was it possible to provide alternative LTC services to the elderly at a cost substantially below that of NHs, but that this care could be provided with a high level of satisfaction (97% satisfaction level with the single-entry program from clients and their informal caregivers). Another pilot project determined that after implementation of SEP, the average length of stay for clients in acute care hospitals awaiting transfer to a NH dropped from 10.0 to 9.1 days from 1991/92 to 1993/94 (23).

The initial intent of single-entry was to reduce the numbers on the waiting list for NHs in the province. When the pilot project began, 1010 seniors were on the waitlist; the number dropped to 390 two years later, and the next year there were only 55 people on the waitlist. This suggests that prior to single-entry, many clients were placed in insitutions, when, with some additional assistance, they could have remained in the community (15).

The single-entry system has been demonstrated to be cost-effective in New Brunswick. The costs have been shown to significantly lower for home care or other alternative community-based care than for NH care; home care costs are about one-third of the per diem rate for NHs (15).

1.3.2.7 Nova Scotia

Nova Scotia does not have a single-entry system. There is no well organized system for determining priority of placement and the province is currently trying to restructure their LTC sector (24).

NHs in the province provide a maximum of level 2 care (2.5 hours of personal care per day with nursing supervision) therefore clients with heavier care requirements often occupy an acute care bed (24).

1.4 CURRENT PROBLEMS AND FUTURE CHALLENGES

The elderly represent a growing segment of the population of Canada and especially of Newfoundland. Between 1991 and 1996 the proportion of the provincial population aged > 65 years increased from 9.6% to 10.8%. Statistics Canada has estimated that seniors will comprise 36.8% of Canadians within the next 40 years (25). The population aged > 80 years (the 'oldest old') will experience the greatest percentage of growth, significantly increasing the demand for long-term care support (25).

NH care is the largest component of LTC expenditures for the elderly population (41). It is crucial to find ways to reduce this large and growing public and private financial burden. The St. John's Region, like the rest of the province of Newfoundland and Labrador, relies heavily on institutional LTC. The increase in the aging population will make it increasingly difficult to provide quality long-term care services and programs within the resources available.

There is a portion of NH residents that do not fulfill any objective criteria for requiring professional nursing care and there is a concern that there is a mismatch between the needs of the elderly and the level of care provided in institutional LTC in the St. John's Region. About 20% of clients recommended for NH placement in the Region could probably be more appropriately placed in SC (24).

The use of LTC resources could be made more appropriate by improving placement decisions before a client's assignment to a LTC facility. In addition, if clients continue to be placed according to our present allocation system, the St. John's region may face a major NH bed crisis by the year 2006 (26).

The aging of our population, especially the 'oldest old', will raise total per capita health care costs, but this increase in cost will be gradual and sustainable. The real issue, it has been argued, is actually increased utilization rates of our health system (27). We need to address how to re-organize our current system in order to provide more appropriately for our elderly population (24).

II. PURPOSE

The purpose of this study was first:

1. To describe the characteristics of clients requesting institutional
2. To determine the natural history of clients after placement in institutional LTC
3. To assess the needs of clients of LTC

Secondly, to use this data as well as incorporate predicted demographic trends:

4. To predict future trends in institutional LTC
5. To propose a method of restructuring the current LTC system

The study was done on a cohort of clients in the St. John's Region of Newfoundland to predict future trends for this Region (Appendix A). The St. John's Region was ideal to study. Firstly, there is an existing data set. Data on an incident cohort applying for LTC in the St. John's region was collected by the Patient Research Center in the year 1995/6. The assessment records of all clients approved for placement, along with those on the wait list on a single day were reviewed. Client needs were determined and classified using both the Alberta Resident Classification System (ARCS) and the RUG-III system.

Secondly, several community services are already in place in the Region, including home care, meals-on-wheels, respite care, and geriatric day care programs.

Therefore any change that need to take place can occur mainly through restructuring of the present system rather than addition of several new resources.

Thirdly, the St. John's region consists of both an urban and rural population. Clients tend to be diverse in socioeconomic status and need requirements. This may effectively represent a cross-section of Newfoundland and Labrador's client population as a whole.

III. DESIGN AND METHODS

3.1 BACKGROUND/ PREVIOUS STUDIES

3.1.1 Incidence data

Clients who requested institutional LTC during the year 1995/96 (when single-entry was first introduced in the St. John's Region) were placed on a waitlist. This cohort (referred to herein as the 'waitlist cohort' and consisted of 426 clients) was investigated by researchers at the Patient Research Centre (PRC). The assessment records of all clients who were approved for placement, as well as those on the waitlist on a single day, were reviewed.

The PRC researchers used RUG-III and ARCS (see section 3.2) as objective criteria to determine clients' needs' for LTC. An algorithm was developed using these criteria, and the researchers' theoretical placement decisions were compared to actual Community Health panel decisions, as well as actual client placement. The data were used to forecast annual demands for institutional LTC in St. John's (24).

Among those clients for whom SC was recommended by the panel, the algorithm suggested that 14% had no identifiable need and a further 29% could be managed with community-based services (24). There was also found to be variation in waiting times to placement that was influenced by the level of care required, but the location of care sought had an even greater influence. Access to PCHs (which provide SC) outside the city of St. John's was fast; however, many applicants waited months for similar care (i.e. SC) in NHs within the city (24).

3.1.2 Prevalence data

A second study was performed in 1997 on residents already residing in institutional LTC in the St. John's Region. The RUG-III and ARCS were again used to classify these clients in terms of need for LTC.

This study demonstrated that about 20% of clients residing in NHs could have been appropriately cared for in SC (such as in PCHs). This study was used to suggest the current required number of NH and SC beds for the Region based on these observed needs. The required numbers were determined to be 87 NH beds and 56.5 SC beds per 1000 people aged $\geq$75 years (24).

3.2 RESEARCH INSTRUMENTS

In order to have a systematic approach to planning LTC, client care 'needs' must be objectively ascertained.

There are several tools that have been developed in order to measure of care requirements. Most of these tools are based on a clients' functional ability, and incorporated the ability to perform activities of daily living (ADLs, i.e. Bathing, toileting, ambulation) and instrumental ADLs (IADLs, i.e. Shopping, housework, finances).

These research tools, however, have not been used for the specific purpose of determining appropriate placement of LTC clients. Development of tools in this area has largely been driven by policy needs and although many of the instruments have been validated, the degree of validity is unknown.

Investigators at the PRC, as described in Section 3.1, previously used the two instruments that were used in this study, RUG-III and ARCS.

3.2.1 Resource Utilization Groups Version III (RUG-III)

3.2.1.1 Background (RAI)

The National Nursing Home Resident Assessment Instrument (RAI) was implemented across the U.S. in 1990. The RAI consists of the Minimum Data Set (MDS; as set of core assessment items that provides information on a clients' functional ability) and the Resident Assessment Protocols (RAPs; 18 areas that represent common problem areas for NH clients) (28).

A combination of clinical reviews and two versions of the MDS and RAPs were tested in 28 NHs in six states, using dual assessments of over 600 NH clients, and on facility and research nurses in order to establish face validity and inter-rater reliability of the RAI items (28).

The primary use of the RAI is clinical. NH clients are assessed upon placement to a NH then at least annually or on any significant change in status. This information is used to develop individualized client care plans (28). The RAI are also used to identify residents with complex medical needs, in order to determine NHs' Medicaid reimbursement, i.e. Case-mix funding. A subscale of the RAI, the RUG-III described in Section 3.2.1.2, is usually used for this purpose. The RAI is also used to determine NH clients' eligibility for State and federal payments (28).

In addition, the RAI is also used to develop quality indicators as part of the federal quality assurance system (29). The RAI was evaluated in 10 states in 269 randomly selected NHs and involved over 4000 clients and comparisons were made between 1990 (pre-RAI implementation) and 1991 (post-RAI implementation). There were statistically significant improvements in comprehensiveness and accuracy of

clients' medical charts; increase in comprehensiveness of care planning; increased involvement of families and clients in care planning; increased use of behaviour management programs; increased involvement in activities; decreased use of physical restraints and indwelling urinary catheters; reductions in client ADLs; and a reduction in acute hospitalization of NH clients, with no increase in mortality (28).

The RAI has been found to be reliable in multiple trials in several countries (30) including Canada. 70-96% of items in the RAI achieved an adequate to excellent level of reliability, with no differences across seven developed nations studied. The RAI met the standard for good reliability ($\kappa \geq 0.6$) in most categories (30).

InterRAI, a group of over 30 researchers from 16 countries, are continuing to investigate this assessment tool (22). The MDS instruments, therefore, are the subject of ongoing research and will likely be useful in facilitating further international evidence-based LTC research (28).

3.2.1.2 RUG-III (Appendix B)

RUG-III is a specific subscale of the MDS. RUG-III is used as the basis for funding NHs in 11 states in the U.S. It is also the basis of the LTC funding system in Iceland, and is used as the case-mix funding system for chronic care in Ontario (22) and is being considered for the same use in Saskatchewan (28).

RUG-III is a case-mix method developed in Connecticut in the 1980s specifically for measuring day-to-day resource use in the LTC of elderly people. Measurement of case-mix is a means of categorizing clients, usually by clinical characteristics, in order to compare their outcome, quality of care and resource use. The latest version of RUG,

(RUG-III), incorporates information for grouping patients undergoing rehabilitation. The system has been found to explain resource use in NHs in the Netherlands, hospitals for elderly people in England, Wales, Japan and Sweden, and is being undergoing investigation in Denmark, Switzerland, Italy and Australia (31).

During development of RUG-I, the heaviest care units in 176 skilled NHs in six states were used; in expanding to RUG-III, an additional 995 clients from New York State were included. Overall, 7 658 clients were used in the randomization to determine resource use. The instrument was found to be valid (degree unknown) with high inter-rater reliability (average Spearman-Brown coefficients 0.76 with few less than 0.60) (32).

The RUG-III was developed from the MDS in order to recognize the unique combinations of resident characteristics that result in different patterns of resource utilization (32,33). The RUG-III system comprises seven main clinical groups arranged hierarchically, ranked by cost. The groups are: Rehabilitation, Extensive services, Special care, Clinically complex, Impaired cognition, Behavioural problems and Reduced physical function. Clients can qualify for more than one group, but are placed in the most resource intensive one. Therefore, the final group, Reduced physical function, contains clients who fail to meet the criteria for any of the other groups.

<u>Limitations to using RUG-III to determine appropriateness of NH placement are:</u>

- it was not developed for this purpose. It was developed, as described, for the purpose of determining case-mix for determining appropriate reimbursement for resource use (34,35);

- geographic limitation of the data to NHs in the U.S. (although our NH populations are probably comparable);
- RUG-III was derived to explain staff time of aides and nurses, but it is not known whether they describe other measures of resource use, including other staff and ancillary services (34,35).

Advantages to using the RUG-III system in our study:

- it has been validated across a range of populations (31,35) (although the degree of validity is not known);
- it was designed for the elderly population;
- it was used in past studies in the PRC so we have maintained internal validity and consistency within our own studies.

3.2.2 Alberta's Resident Classification System (ARCS) (Appendix C)

In 1988, the Province of Alberta introduced the Alberta Resident Classification System (ARCS). In addition, the classification data was felt to be important for policy and planning and possibly have a role in outcome measurement, although it was not designed for this purpose.

Like RUG-III, ARCS was designed in order to measure the care requirements of clients in LTC facilities and provide case-mix information so that funding could be based on client need rather than a system of global funding (17). In contrast with RUG-III, however, which classifies clients in terms of resource use and need for professional nursing care, ARCS classifies clients in terms of level of disability. In other words, a

client could potentially be mildly disabled but require intensive resources or have nursing requirements; or, vice versa, a client could be severely physically disabled but require no NH resources or professional nursing care.

. In the ARCS, clients are categorized into seven categories (A-G), each category being associated with increasing resource utilization; A represents the most independent and G represents the most dependent. The categories group clients according to their need for assistance with activities of daily living, behaviours of daily living and for continuing care for urinary and fecal incontinence. These needs describe the functional abilities of the clients (17).

Limitations of the ARCS to determine appropriateness of LTC placement are:

- since ARCS classifies clients according to level of disability rather than directly measuring clients' need for professional nursing care, the instrument may be biased because it goes beyond case-mix data to include variations in client needs due to availability and competence of care providers (17);
- the ARCS was designed to include all LTC clients (including young physically handicapped people and mentally dysfunctional elderly) (17).

Advantages to using the ARCS in our study are:

- it is a validated instrument for determining care requirements;
- although the ARCS was not developed for the purpose of objectifying the process of LTC placement, the instrument is probably useful for serving this purpose (36);

- it was used during previous LTC studies at the PRC so we have maintained internal validity and consistency within our own studies.

3.3 RESEARCH DESIGN (Figure 3.1)

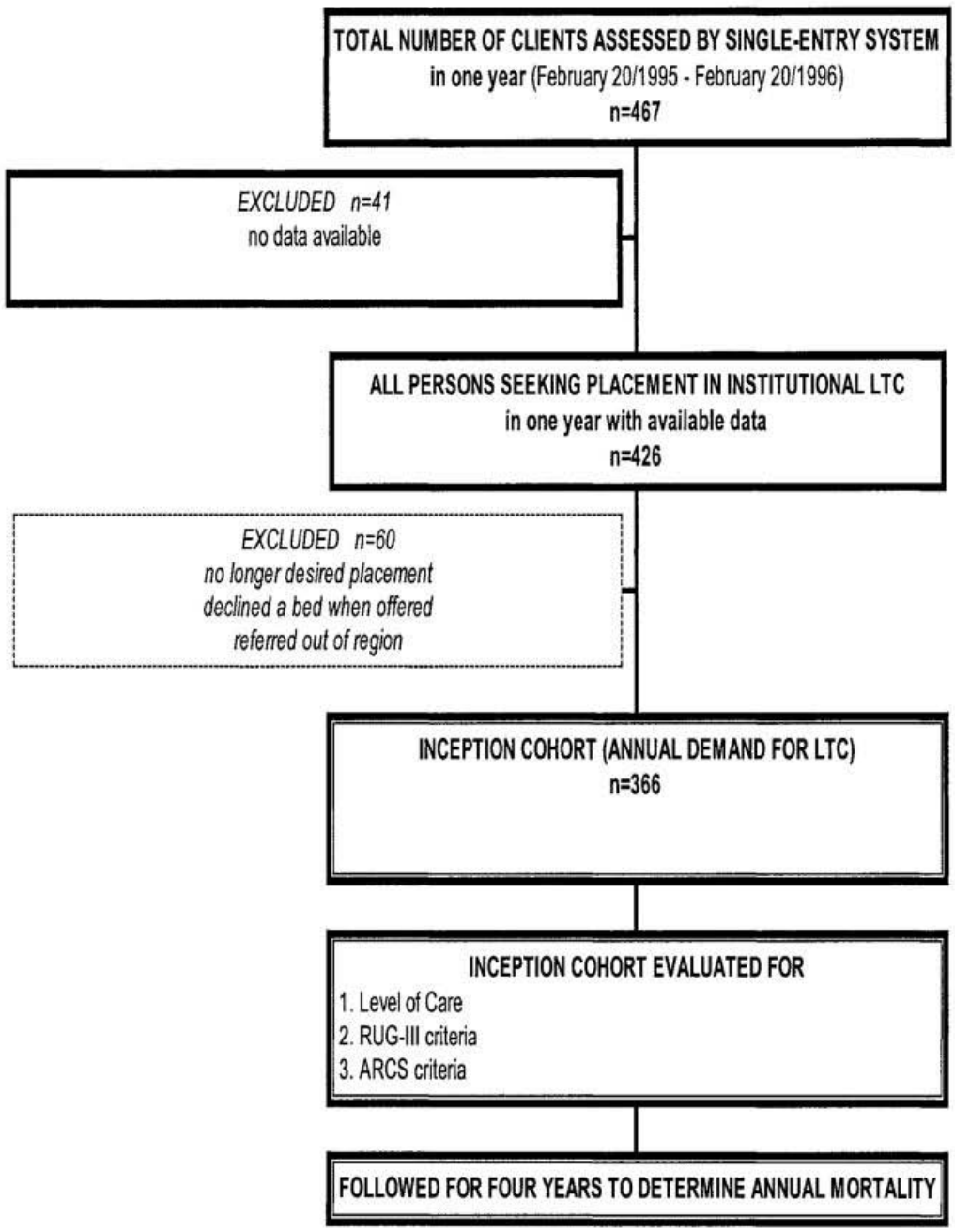
The annual demand for institutional LTC was determined ('Inception Cohort') from a cohort of new clients who applied for institutional LTC placement in the St. John's Region. The Inception Cohort was assessed to determine appropriate placement, using validated scoring systems to measure client needs.

Each study participant was assessed on (a) clinical need for professional care provided in a NH (RUG-III), (b) degree of disability (ARCS) and (c) follow-up annually for four years from time of placement.

We evaluated:

- Appropriateness of client placement
- Mortality data annually for four years of placement

Figure 3.1 Methods



3.4 SAMPLE SELECTION

3.4.1 Inclusion Criteria

- Clients who contacted Community Health St. John's Region for institutional placement and subsequently assessed
- Total number of clients included was 467.

3.4.2 Exclusion Criteria

- Precautionary applications (clients unsure of whether they would definitively go to LTC if placed)
- Transfers from one LTC institution to another
- There was missing data in their chart (ex. Date of placement, birthdate, etc.)
- Total number of clients excluded was 41.

3.5 STUDY POPULATION

426 out of 467 clients who were accepted for LTC placement by the St. John's Single Entry System from February 20,1995 to February 20, 1996 had data available and were therefore assessed. Thus 91% of the eligible study population was studied. Follow-up data was acquired for 366 clients accepted for placement, who were not precautionary applications, transferred, or placed out of region (n=60).

3.6 ETHICS

The Human Investigations Committee at Memorial University of Newfoundland approved this study. Informed consent of clients was not sought because their information was obtained through chart abstraction without client participation. However, confidentiality was maintained by not using client identifiers on any study documents or reports.

3.7 PROCEDURE

Once approval had been granted from the Human Investigations Committee of Memorial University, a list was obtained from Community Health St. John's Region of all clients seeking placement in the institutional placement during the year 1995/96. The 426 clients with data available were assessed to determine the level of care which was recommended by the placement committee and to determine their RUG-III criteria and ARCS.

Ideally, the demand for LTC beds would closely approximate the number of available beds and the beds would be appropriate for the needs of the clients. In an efficient system with an appropriate number of beds, waiting times would be short. In the current situation, with long waiting times, clients place their names on the waitlist but sometimes die before a bed becomes available. In an efficient system the waitlist would be shorter and therefore fewer clients would decease while awaiting a bed. From the original cohort (n=426), clients who no longer desired placement after placing their names on the waitlist, who transferred out of region, or were transferred from one

institution to another were excluded. This Inception Cohort (n=366, Figure 4.2), whether or not they died while awaiting placement, was assumed to reflect a more accurate annual demand for LTC beds.

Annually for the next four years (i.e. Until and including 2000) mortality data was collected. The data from this cohort was used to determine the natural history of clients as they enter the long-term care sector. This, combined with the annual expected demands for placement as well as expected demographic changes, was used to estimate future trends of needs of the community for long-term care. As we had studied 91% of eligible clients, an extrapolation was made to ensure predictions included 100% of clients expected.

3.8 DECISION TREE (Figure 3.2)

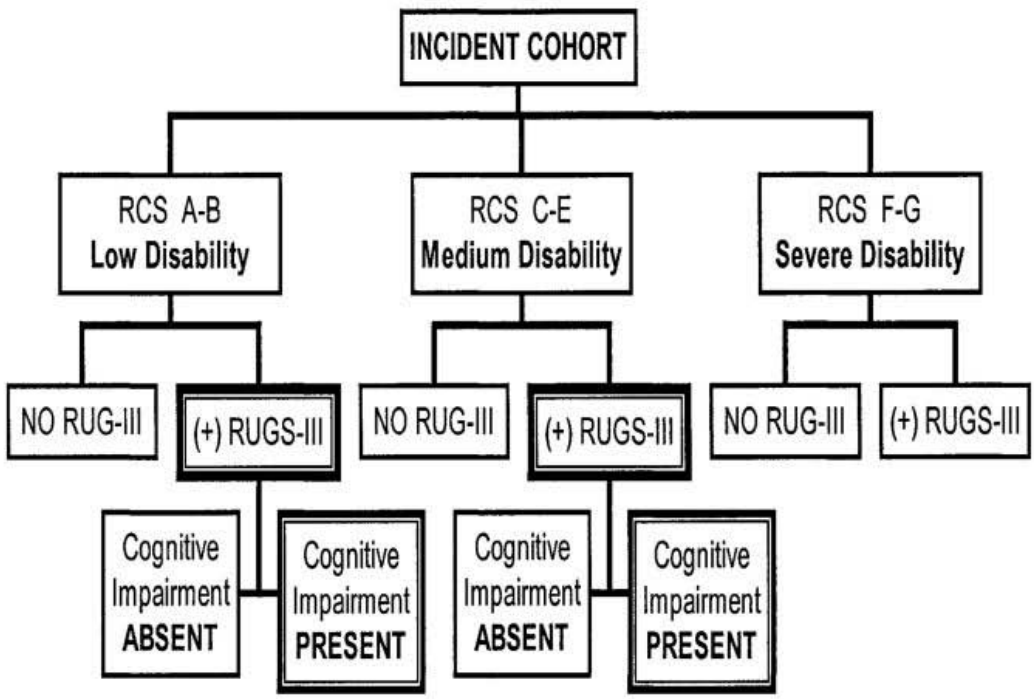
As noted previously, the RUG-III criteria (nor any other criteria) were not developed for the purpose of determining optimal level of care placement for LTC clients. The RUG-III criteria describe specifically the need for professional nursing care. One flaw, for example, is that some RUG-III criteria such as need for dialysis, although requiring professional nurses, does not necessitate NH admission. A client at home or in SC could, for example, be transported three times a week to a center that performs dialysis.

Since RUG-III only states the need for nursing care, it seems reasonable to first determine a client's level of disability (using ARCS), and then determine whether or not the client also requires nursing care. The ARCS were used to divide the incident cohort into three levels of disability: mild (ARCS A-B), medium (ARCS C-E), and severe

(ARCS F-G). Then, RUG-III criteria were applied in order to determine the number of clients that actually need professional nursing care that actually had disability.

In addition, this third node of the tree included the presence or absence of cognitive impairment, as it is possible that clients with mild or moderate physical disability with cognitive impairment could be cared for in specialized facilities for the cognitively impaired.

Figure 3.2 Decision Algorithm to determine LTC needs of the Incident Cohort



3.9 ANALYSIS

The data were analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to describe the sample. Using the data collected from the St. John's region, Kaplan Meier distributions of life expectancy for the different levels of care were constructed, with censoring of out data at date of last follow-up.

- Once natural history and mortality of the original (incident) cohort was determined, the additional annual predicted incidence cohorts, up to and including 2007, were incorporated
- Projected short-term demographic trends were incorporated:
  - The projected rate of increase of the elderly population
  - The projected rate of decrease of the numbers of caregivers available at home
- The projected annual incidence of application to LTC was incorporated
- Projected long-term demographic trends are discussed:
  - Increase of numbers of clients with dementia
  - Decrease of the numbers of caregivers available at home
  - Rate of external migration from the province

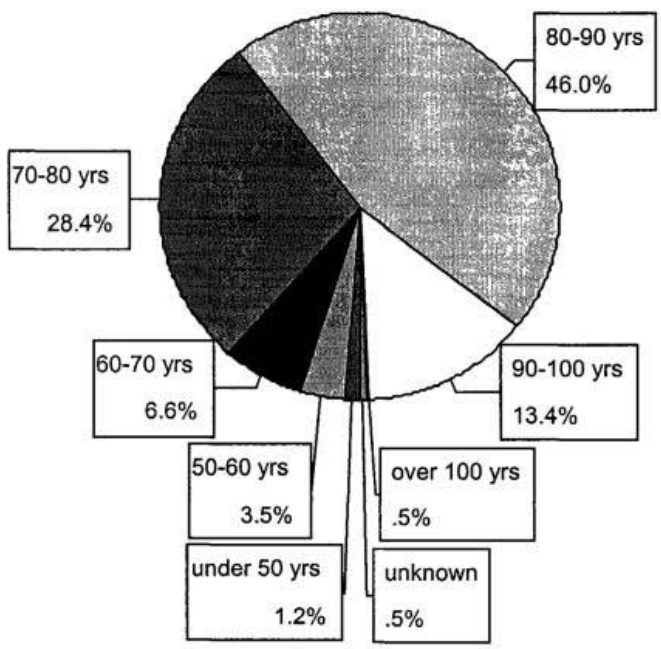
IV. RESULTS

4.1 CLIENT CHARACTERISTICS

4.1.1 Incident Cohort (Figure 4.1)

Of the 426 clients accepted for institutional LTC, 62.9% were female. The mean age (upon acceptance) was 81 years; the mean age for men was 78 years and for women was 82 years. 75% of all clients accepted were $\geq$ 70 years of age.

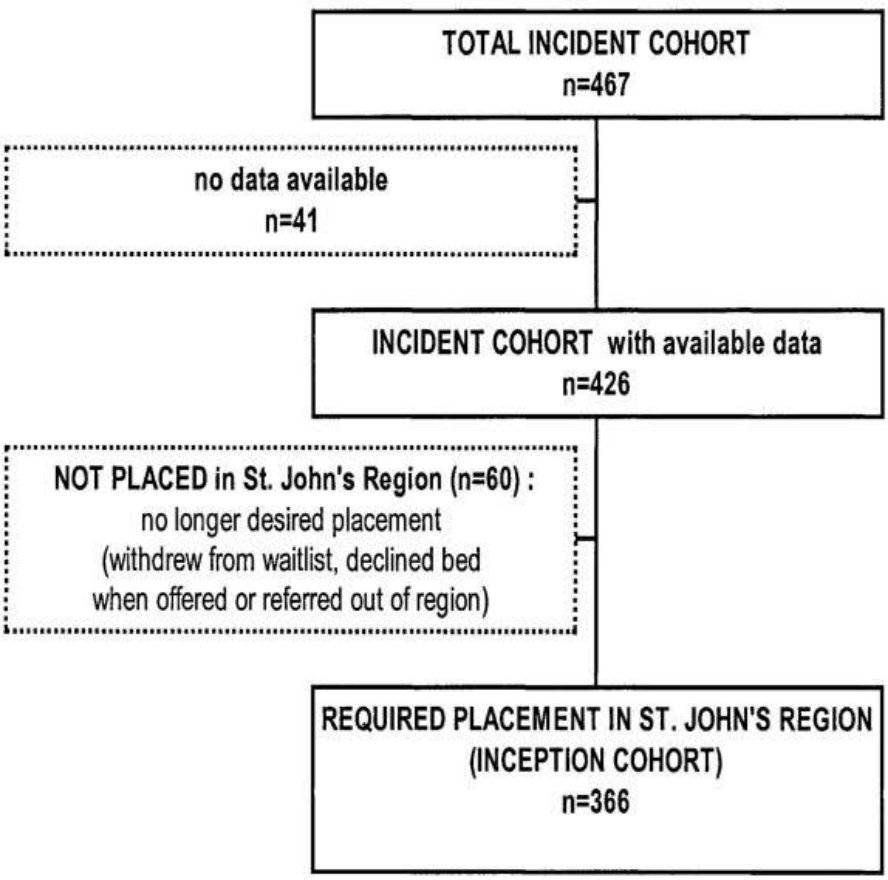
Figure 4.1 Incident Cohort (n=426): Age Groups



4.1.2 Inception Cohort (Figures 4.2, 4.3, 4.4, 4.5, 4.6)

A more accurate annual demand for LTC beds than the Incident Cohort is the Inception Cohort (described further in Section 3.7).

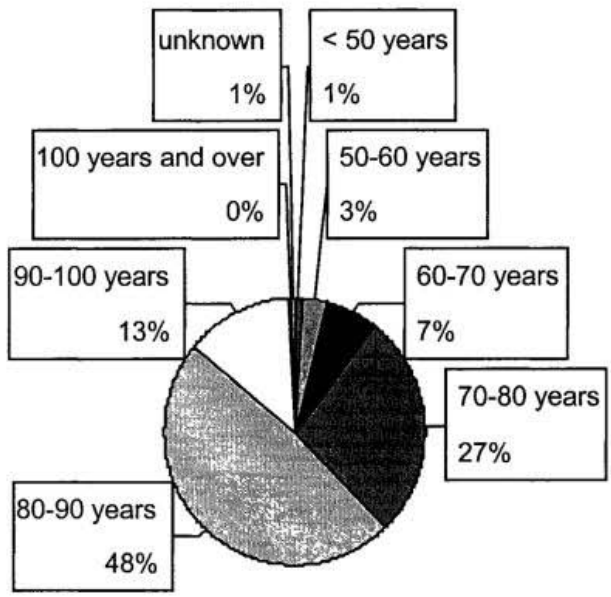
Figure 4.2 Inception Cohort



Of the 366 clients in the Inception Cohort who required placement in the St. John's region during one year, 62.6 % were female. The mean age was 81 years; the mean age for men was 78 years and for women was 82 years. Just under 90% of the Inception Cohort were ≥70 years of age.

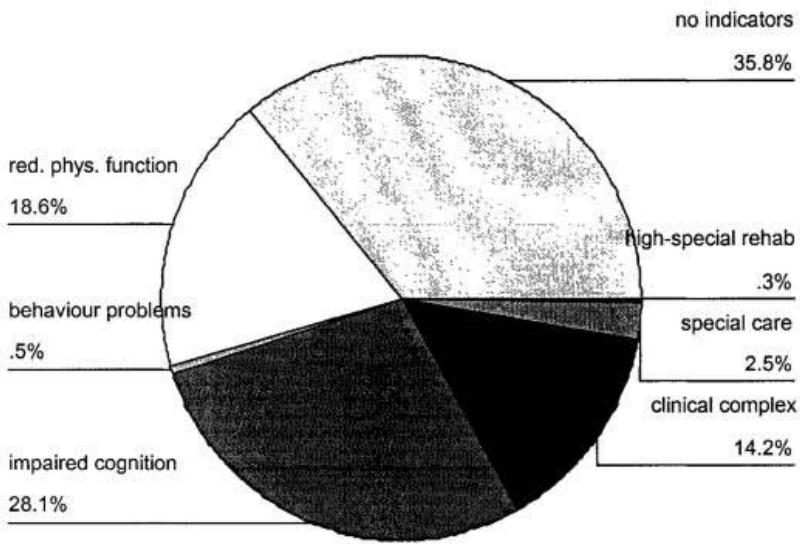
Figure 4.3

Inception Cohort (n=366): Age Groups



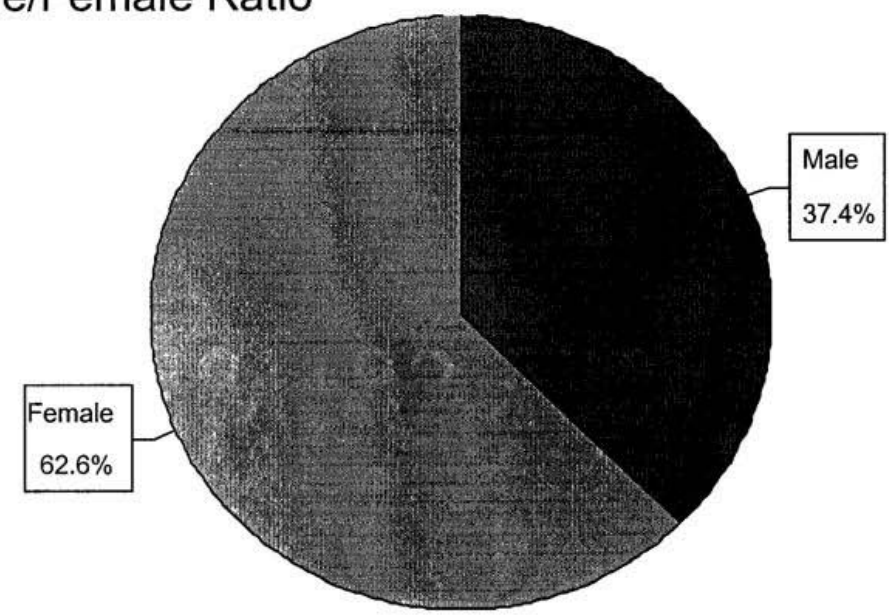
On admission, about 30% of clients had impaired cognition or behaviour problems as their major reason for requiring institutional LTC. About 36% had no major indicators for requiring nursing care.

Fig. 4.4 Inception Cohort (n=366) RUG-III Characteristics



The majority of the Inception Cohort was female.

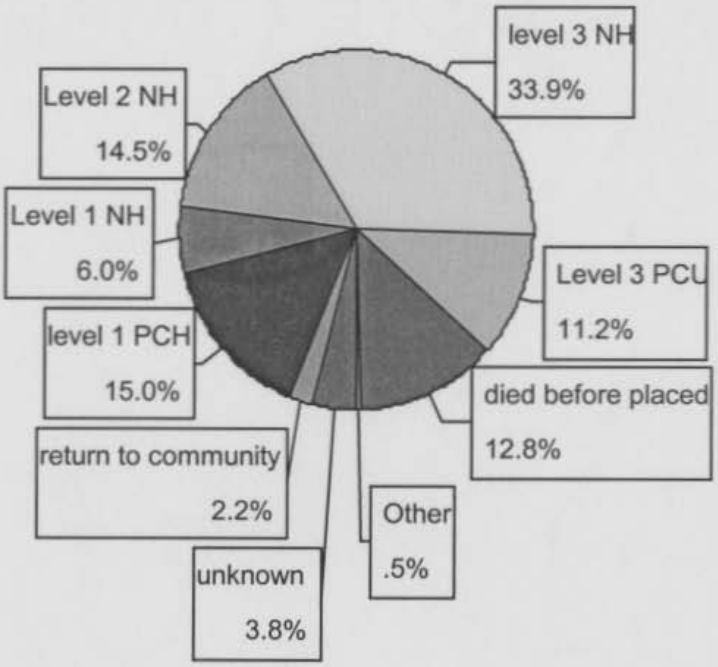
Fig.4.5 Inception Cohort (n=366): Male/Female Ratio



About 60% of the Inception Cohort were placed in NH, while 21% were placed in SC. 75 % of those placed in NH are placed in level 3. 12.8% died while awaiting placement.

Figure 4.6 Inception Cohort (n=366)

Where are they placed?

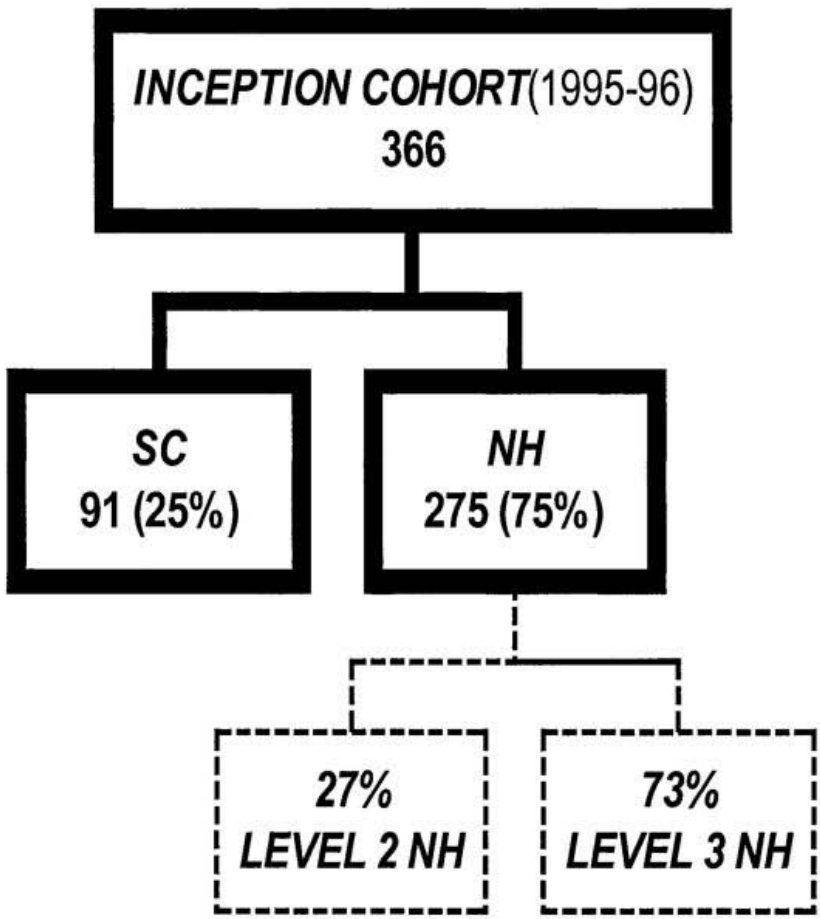


4.2 PRESENT METHODS OF PLACEMENT

4.2.1 Inception Cohort (Figure 4.7)

The single-entry system recommended 75% for NH and the remaining 25% for SC. Most of the clients for NH are recommended for high levels of care (ie. Level 3).

Figure 4.7 Inception Cohort: Levels of Care



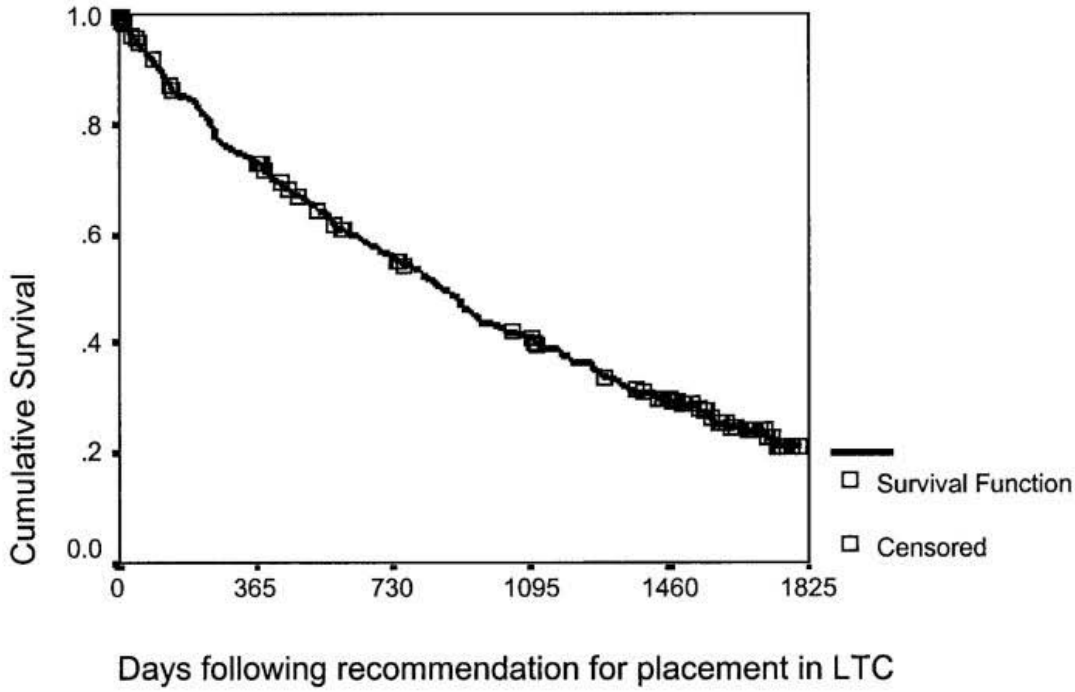
4.2.2 Natural history of LTC clients (Figure 4.8)

In the inception cohort of 366, the mean survival of clients recommended for placement in LTC was 926 days (2.54 years).

There was a 27.0% mortality during the first year following assessment and a further 17.0% mortality during the second year. After four years, 29.5% of this cohort were still alive.

Figure 4.8 Survival Curve:

Inception Cohort (n=366)



4.2.3 Natural history of NH clients (Figures 4.9, 4.10, 4.11, 4.12)

The characteristics and mortality rate of clients placed in NH was then examined and compared with clients placed in all LTC facilities, and with clients placed in SC.

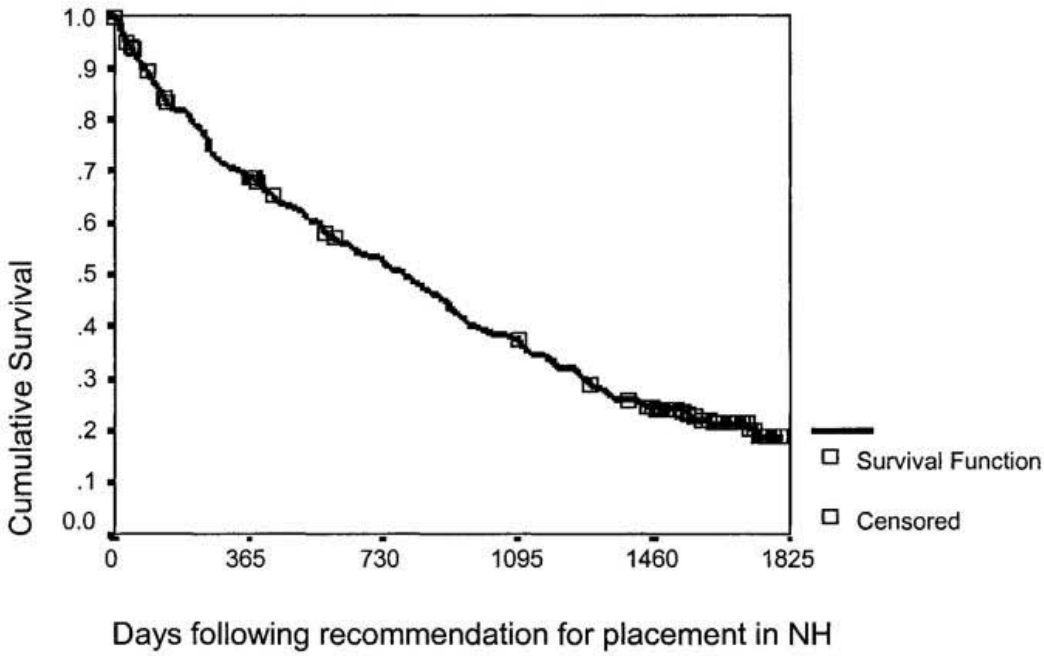
The mortality rate of clients recommended for placement in NH is 31.0% at the first year of placement and 16.0% at the second year. The mortality rate

within the first year of placement is higher than the mortality rate for LTC clients in general, likely reflecting a more impaired client population.

The mean survival time after admission to a NH was 860 days (2.36 years).

Figure 4.9 Survival Curve:

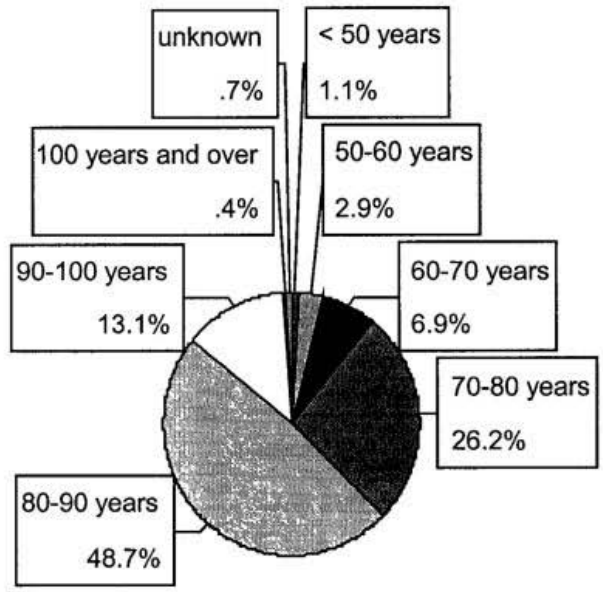
Clients recommended for NH placement



The mean age of clients recommended for placement in NH was 81.0 years. 63.4% were female. Almost 90% of these clients were ≥70 years of age.

Figure 4.10 Age distribution

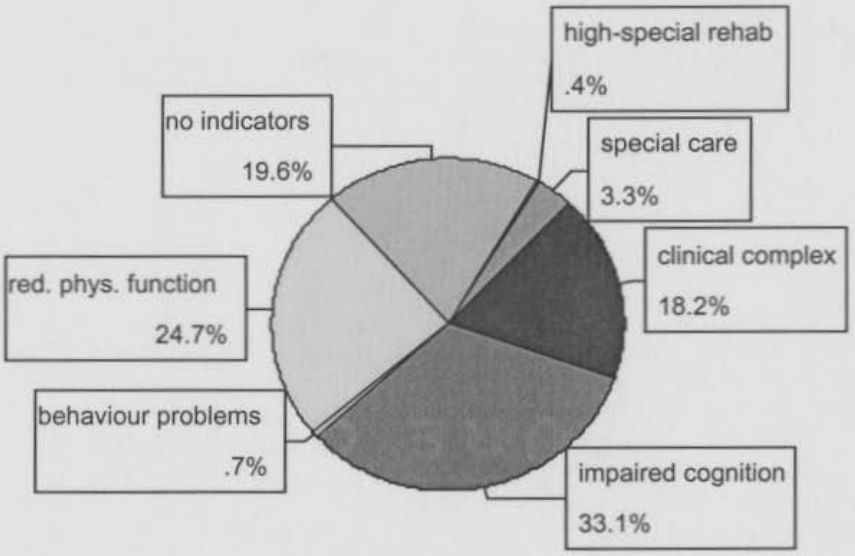
Clients recommended for NH placement



About 34 % of clients recommended for NH placement had impaired cognition or behaviour problems as their major RUG-III indicator. About 20% had no indicators for requiring the care of professional nurses.

Figure 4.11 RUG-III Characteristics

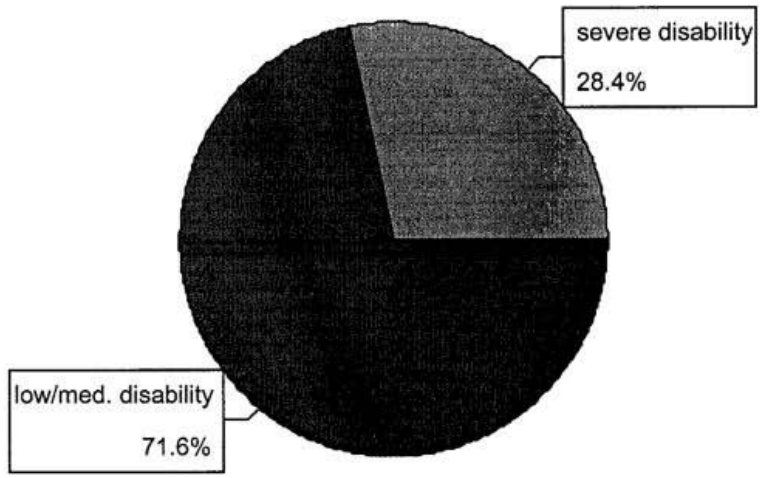
Clients recommended for NH placement



The majority of clients recommended for NH placement by the Community Health panel had only low or medium disability.

Figure 4.12 ARCS Groups

Clients recommended for NH placement



4.2.4 Natural history of SC clients (Figures 4.13, 4.14, 4.15)

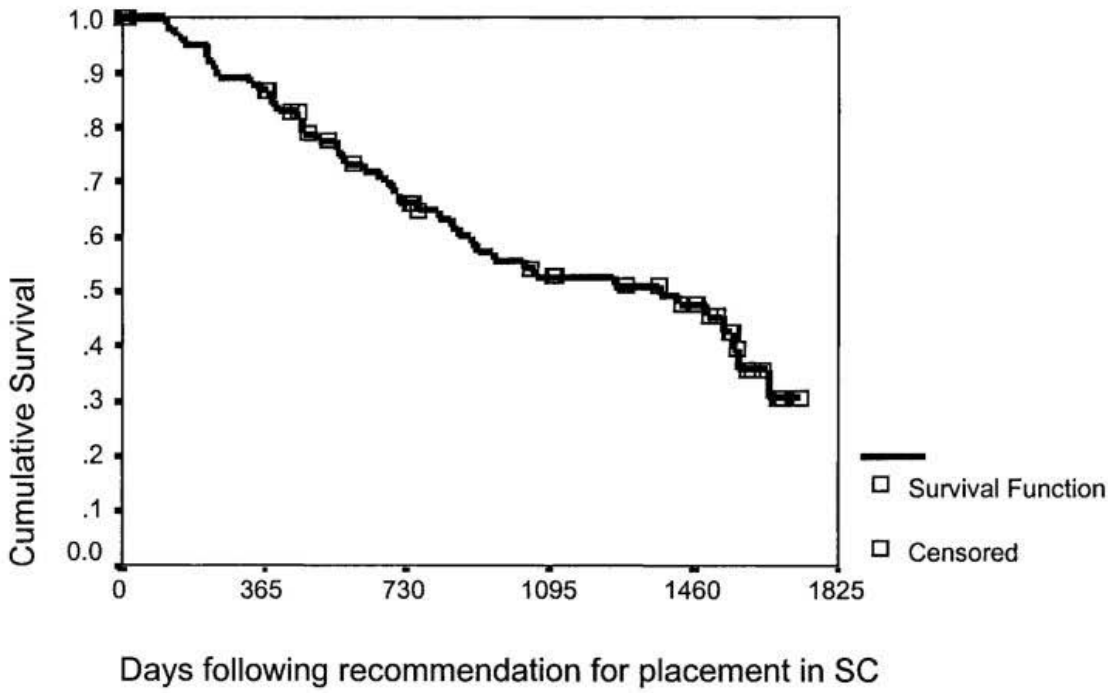
The characteristics of clients recommended for placement in SC were examined.

Mortality after the first year of placement in SC was 13.0%, lower than for NH clients. After second year of placement, mortality was a further 20.5%, approximating the mortality rate of the NH cohort in their first year.

The mean survival time for SC clients was 1126 days (3.08 years), which was 266 days (0.72 years) longer than NH clients.

Figure 4.13 Survival Curve:

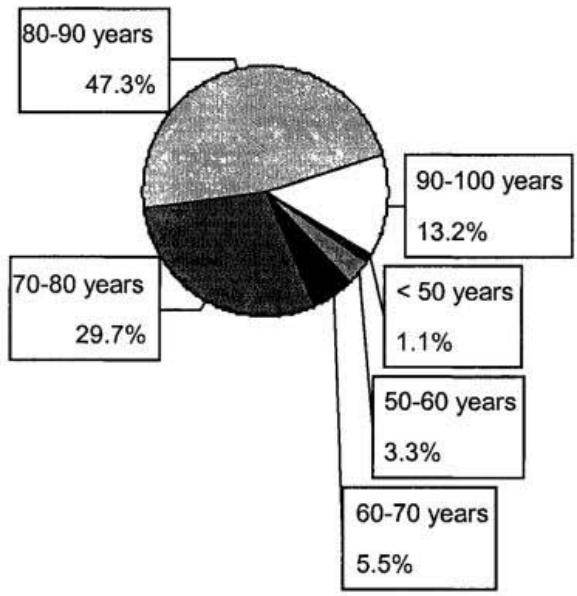
Clients recommended for SC placement



The mean age of clients recommended for placement in SC was 80.7 years. 59.3% were female.

Figure 4.14 Age Distribution

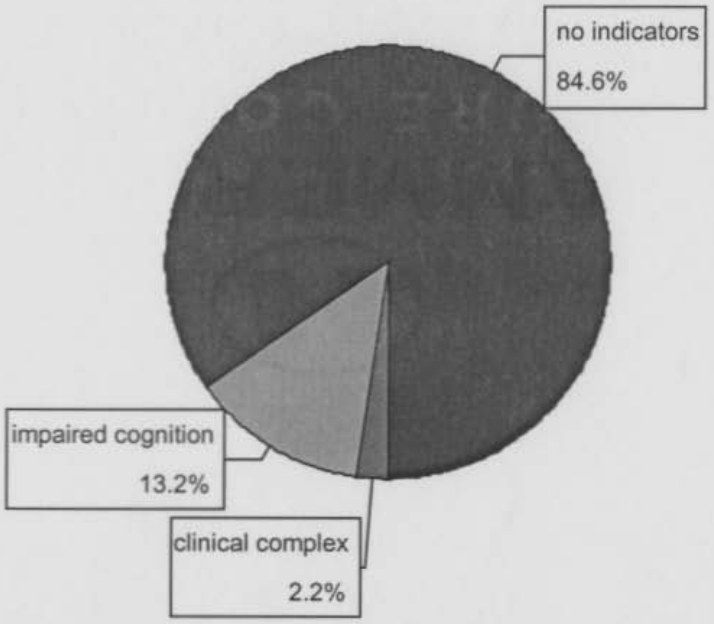
Clients recommended for SC placement



The vast majority of clients recommended for SC placement had no objective requirement for professional nursing care. . All clients recommended for SC were in the low/medium disability group according to ARCS.

Figure 4.15 RUG-III Characteristics

Clients recommended for SC placement



4.3 DETERMINING FUTURE LTC BED REQUIREMENTS USING PRESENT METHODS OF PLACEMENT

In order to determine the demand for NH beds and SC beds in twelve years' time (that is, 2007/08) if the present methods of placement continue, a number of steps were taken.

1) Incorporation of incidence cohorts annually over the next twelve years:

The annual incidence cohorts for four years following the initiation of our study were of similar number to our initial cohort (128). In 1995, incidence of approval for LTC was 467, 426 (91%) of whom we studied. Only 366 of 426 needed placement in the St. John's region. Thus the annual incidence was 402 clients [(366 X 100)/ 91] requiring placement. With a population of 7700 people $\geq$ 75 years of age, the incidence rate was 52.2/1000 people $\geq$ 75 years. Comparable figures in 1999/2000 showed 464 approved for placement, 433 (93.3%) with data available, 403 of whom required placement in the St. John's region, whose population was 8867 $\geq$ 75 years.

Population projections for clients $\geq$ 75 years estimate an increase of 32% (from 26 400 to 34 900) from 1996 to 2007 in Newfoundland (129), and we assumed this same increase would take place in the St. John's region. This population rise is most likely going to be exponential rather than linear. However, since we are most interested in bed requirements in 2007 and not at time points prior to 2007, and for ease of calculations, a linear 2.7% population growth over the next twelve years (ie.

10.8% population growth every four years) was assumed. It was also assumed that the NH and SC population would both equally experience this 2.7% growth annually.

2) Natural history of LTC clients: The annual survival of NH and SC clients was determined (Figures 4.16, 4.17).

3) Projected Bed Requirements: Incidence X Duration of stay in LTC was calculated to determine Prevalence. Then the number of clients requiring NH and SC beds was determined (Table 4.1).

Figure 4.16 Survival following recommendation for NH placement (n=275)

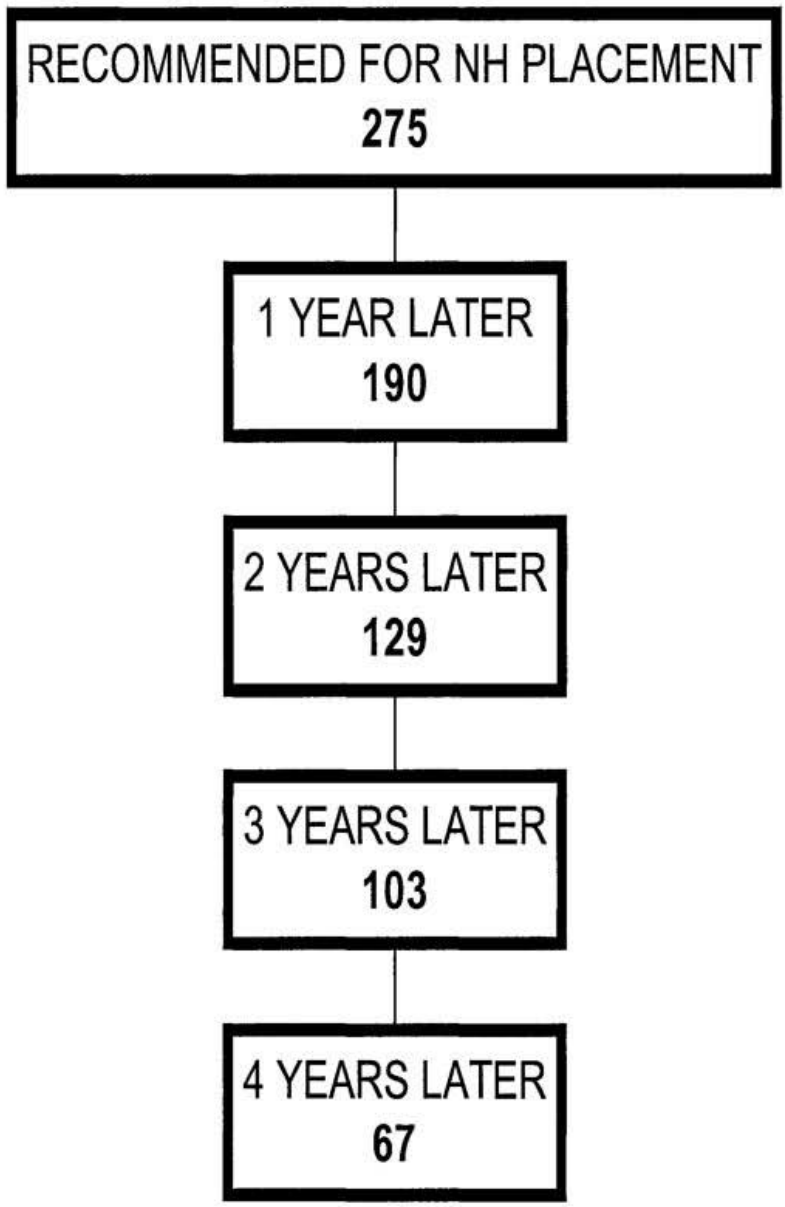


Figure 4.17 Survival following recommendation for SC placement (n=91)

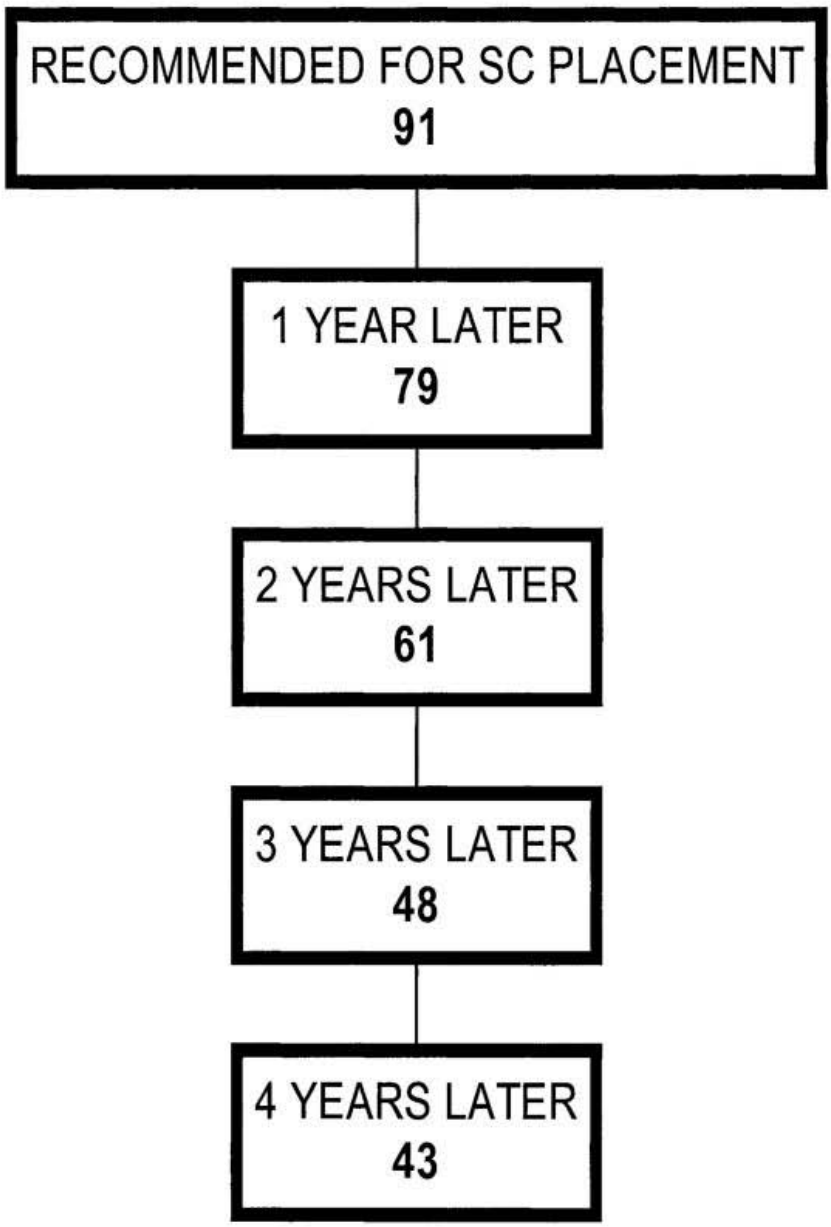


Table 4.1 FUTURE PROJECTIONS OF BED REQUIREMENTS

Using Present Methods of Placement

	Projected need for beds for clients entering LTC in 2007/08	Number of LTC beds currently available in St. John's Region* (1995/96)	PROJECTED BED *DEFICIT* (2007/8)
NH	*1080*	*1048*	*32*
SC	*430*	*334*	*96*

Incidence of NH clients requiring care: [(275 X 100)/91] = 302
Mean survival in NH: 2.36 years
Prevalence: Incidence X Duration = 302 X 2.36 = 712.7
Projected population by 2007 = 8867 (population in St. John's in 1999/2000) + (8867 X 0.216)= 10782
Number of NH clients requiring care in 2007: 712.7 + [302+ (302)(0.216)] = 1080

Incidence of SC clients requiring care: [(91)(100)/91] = 100
Mean survival in SC: 3.08 years
Prevalence: Incidence X Duration = 100 X 3.08 =308
Projected population by 2007 = 10782
Number of SC clients requiring care in 2007: 308 + [100 + (100)(0.216)] = 430

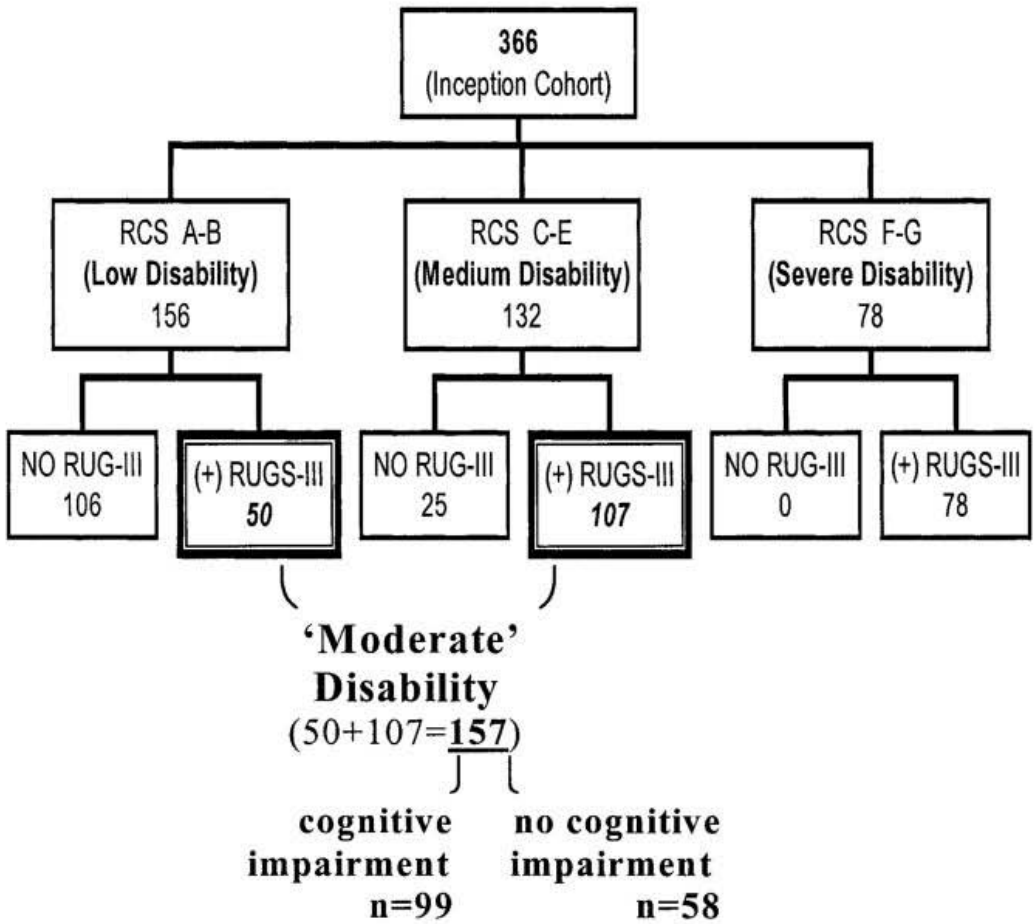
*Using previous boundaries (See Appendix I)

4.4 USING A DECISION ALGORITHM TO DETERMINE CLIENT NEEDS (Figure 4.18)

As described in Section 3.8.3, RUG-III designate clients as requiring the need of professional nurses, while ARCS designate clients to levels of disability. We therefore determined clients' level of disability, then determined whether they fit any RUG-III criteria.

An optimal LTC system would have more housing alternatives, appropriate placement of clients and immediate placement in LTC. Therefore the decision algorithm was applied to the 366 clients in the inception cohort to determine optimal placement.

Figure 4.18 Decision Algorithm to determine Disability and Need for Nursing Care



It is probably reasonable to assume that clients with low and medium disability with no RUG-III do not require NH placement but probably require SC, because they have requested placement despite their modest disability. Similarly, it is probably reasonable to designate clients with severe disability and with RUG-III as definitely needing LTC.

We are then left with a group of clients in between these two extremes. This group includes clients with low and medium disability with RUG-III criteria. It is this group of 'Moderately Disabled' clients for which placement decisions are not quite so straight-forward (Figure 4.18, Table 4.2).

Table 4.2 Determining Appropriate Placement using the Decision Algorithm

CLIENT CHARACTERISTICS	NUMBER OF CLIENTS	APPROPRIATE PLACEMENT
Low & Medium Disability NO RUG-III	131/366 = **36%**	DO NOT need NH placement (require SC)
Severe Disability (+) RUG-III	78/366 = **21%**	DO need NH placement
Low & Medium Disability (+) RUG-III 'MODERATELY DISABLED'	157/366 = **43%**	?

In order to determine the most appropriate care for this 'Moderately Disabled' group of clients, it is necessary to know what their needs and characteristics are, and where they currently reside (Figures 4.19, 4.20, 4.21, 4.22, 4.23).

About 90% of this Moderately Disabled group are ≥ 70 years of age.

Figure 4.19 Moderately Disabled: How old are they?

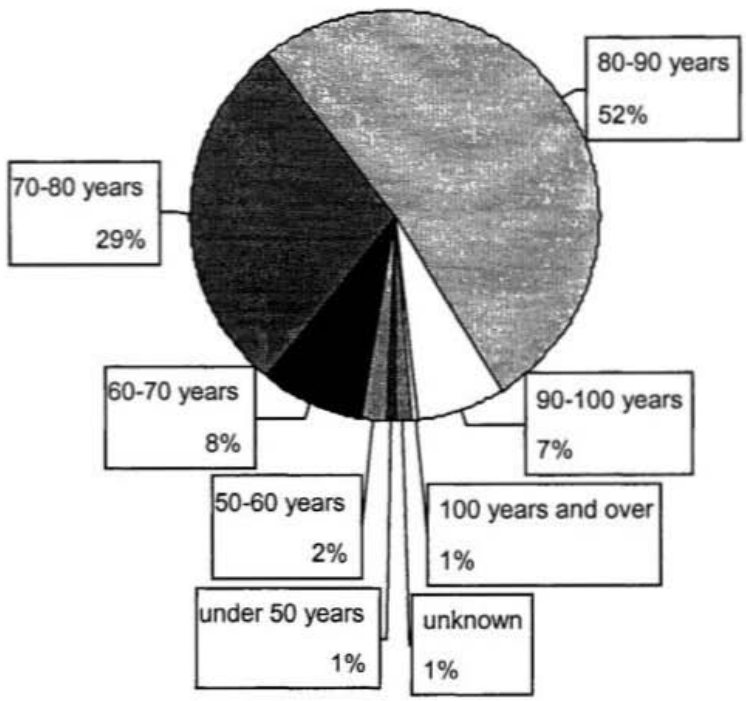
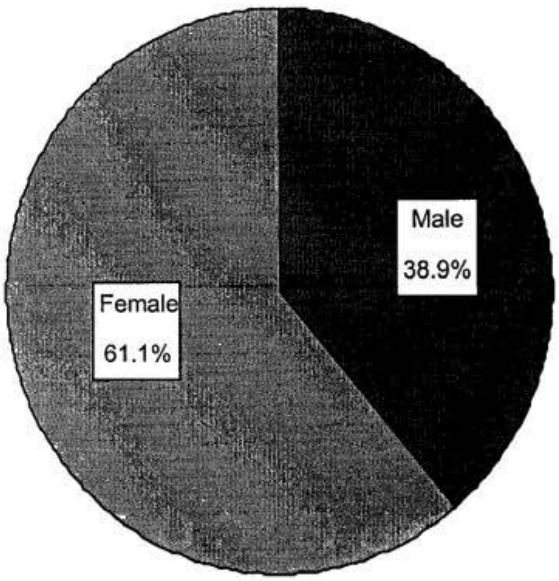


Figure 4.20 Moderately Disabled:

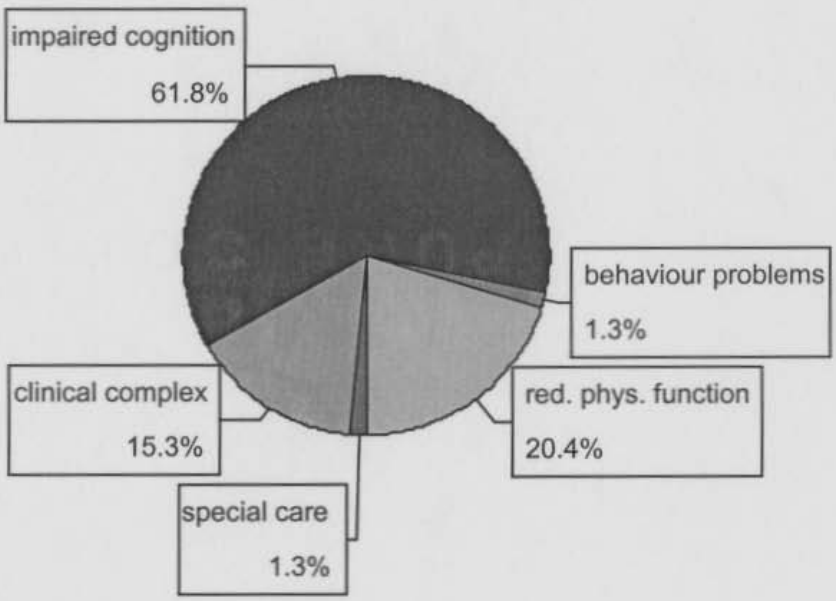
Male/Female Ratio



The majority of this group of clients had impaired cognition or behaviour problems as their major reason for seeking admission to institutional LTC.

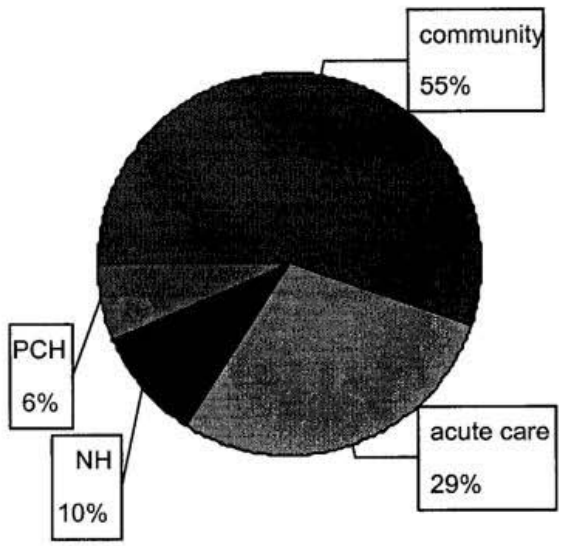
Fig. 4.21 Decision Analysis: Moderately Disabled

What are their RUG-III characteristics?



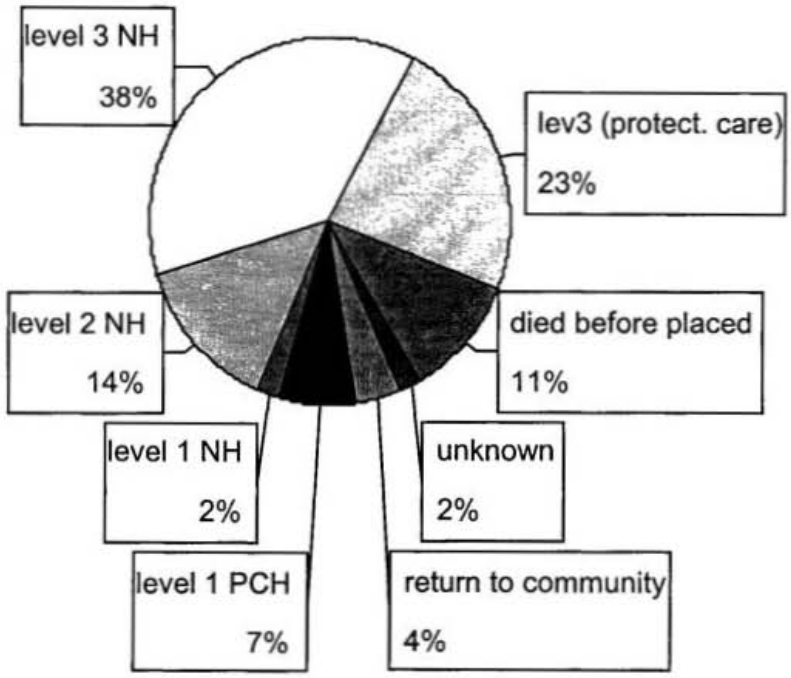
Most clients applied to LTC while they were still living in the community.

Figure 4.22 Moderately Disabled: From where were they placed?



75% of this Moderately Disabled group are placed in NH.

Figure 4.23 Moderately Disabled: Where are they placed?



Of the group of Moderately Disabled clients (n=157), 63% had either impaired cognition or behaviour problems as their primary diagnosis; in other words, 27% (99/366) of the total client population requiring placement were cognitively impaired but had modest disability. The remaining 37% of Moderately Disabled clients had reduced physical function, were clinically complex or required special care. Interestingly, none of the cognitively impaired group had any reduced physical function. Therefore, most clients who are moderately disabled and seeking placement are cognitively impaired but relatively physically well (this has been well documented in the literature. See Section 7.1).

Most (75%) of the cognitively impaired but physically well clients are presently placed in level 2 or 3 NHs (Figure 4.18). There are no specialized facilities available in the St. John's Region for the cognitively impaired. This is obviously a large, important clientele that comprises a major portion of the LTC sector. However, institutional LTC is probably not the most appropriate method of caring for these clients, and other options need to be available for them (this is discussed further in Chapter 7).

Optimal placement for LTC clients would be 36% in SC (131/366 with low and medium disability with no RUG-III criteria), 27% in specialized facilities for the cognitively impaired (99/366 clients who are moderately disabled with cognitive impairment) and the remaining 37% in NH(58/366 clients who are moderately disabled with no cognitive impairment, as well as 78/366 with severe disability). The survival of these clients according to optimal placement was calculated (Figures 4.24, 4.25, 4.26). Figures 4.27- 4.31 show the demographic and clinical characteristics of clients according to their optimal placement.

Figure 4.24 Survival Curve:

LTC clients optimally placed in SC

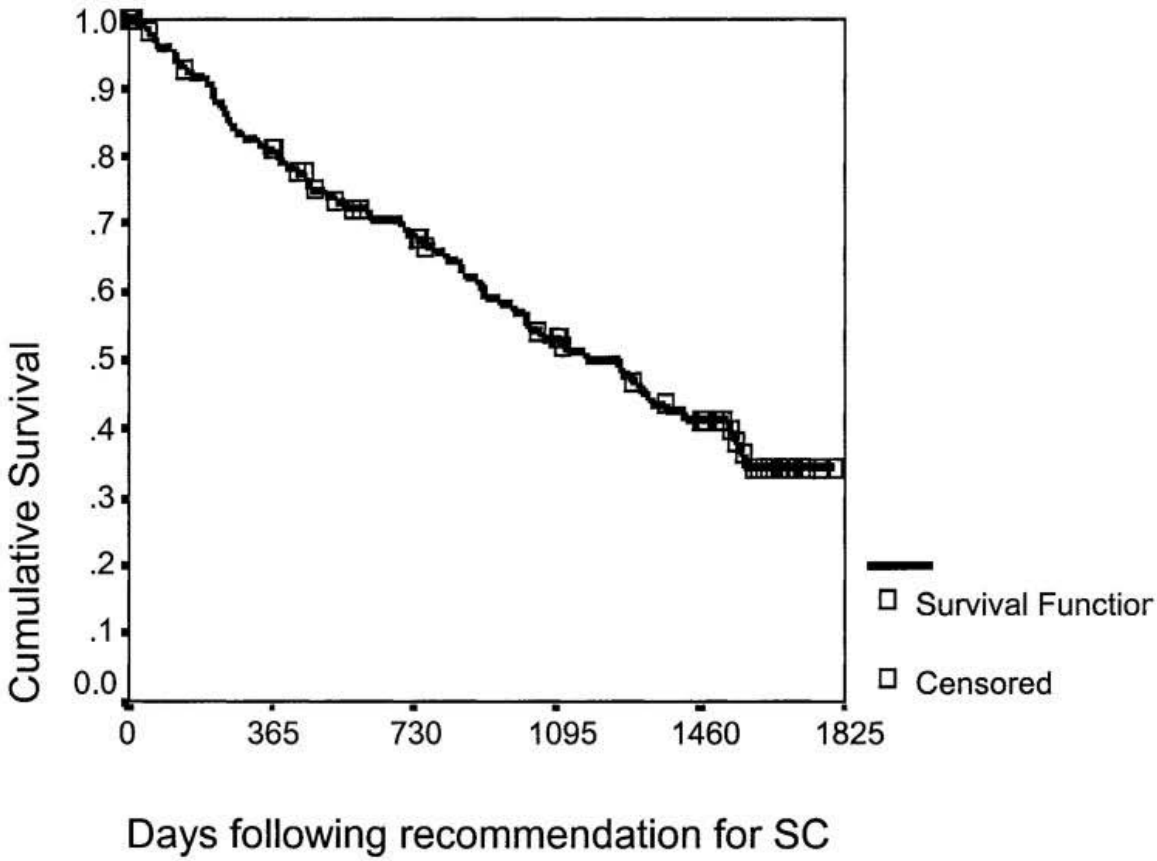


Figure 4.25 Survival Curve

LTC clients optimally placed in

special facilities for the cog. impaired

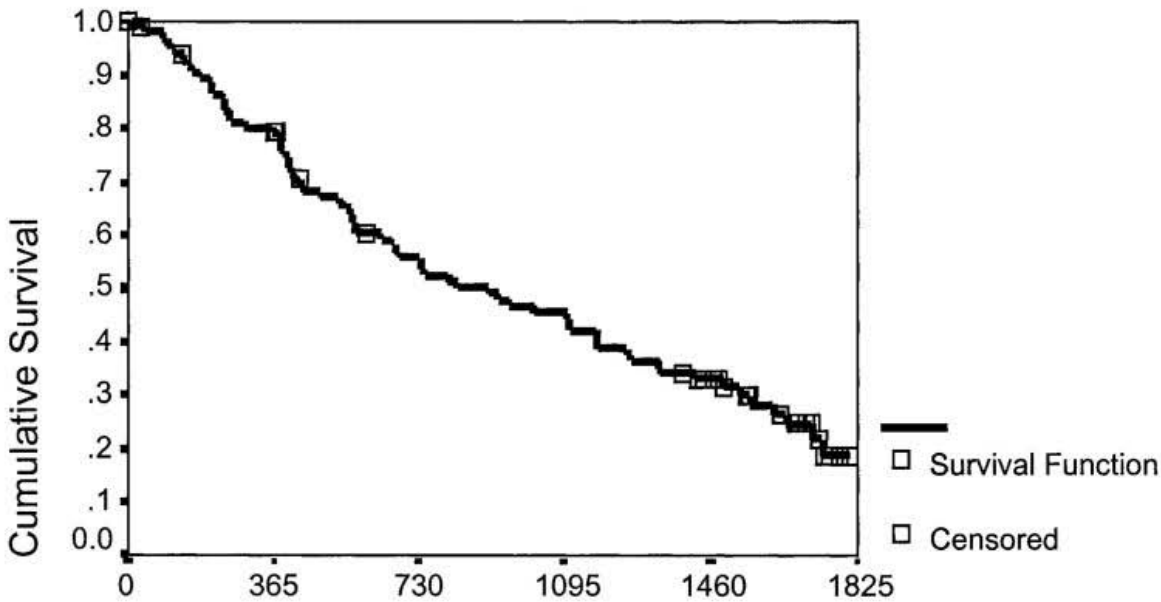


Figure 4.26 Survival Curve:

LTC clients optimally placed in NH

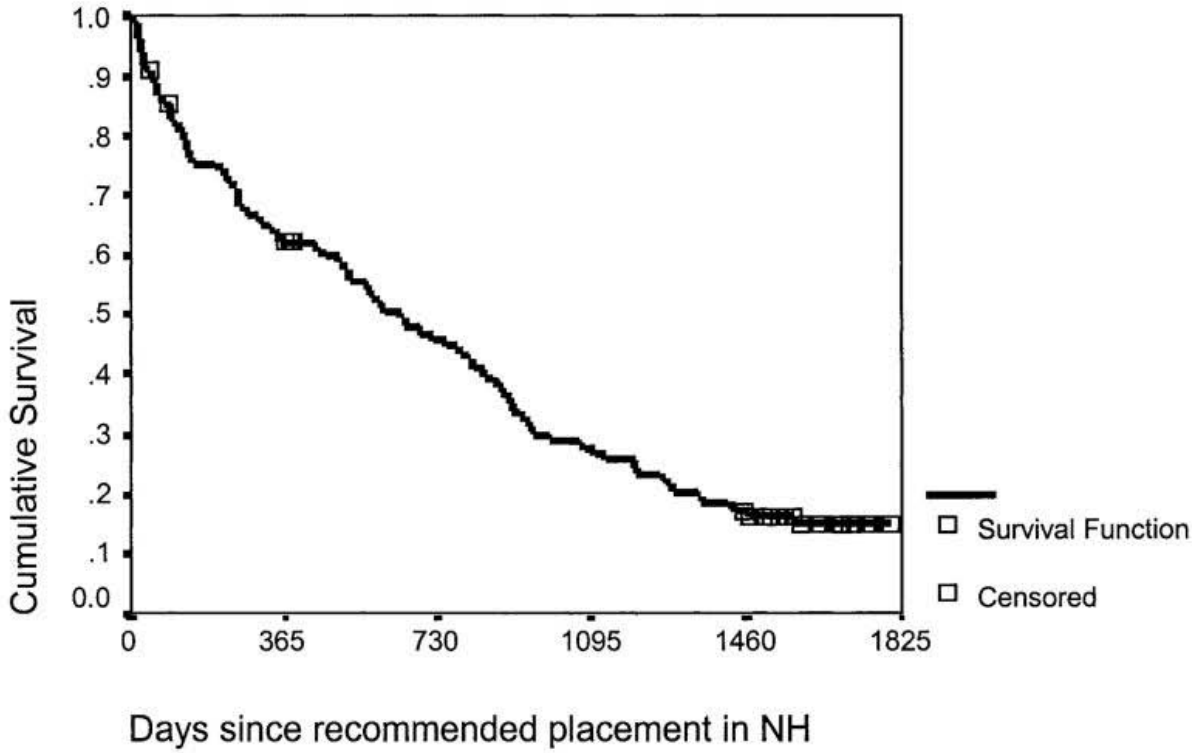


Figure 4.27 LTC clients optimally placed in SC

Age Groups

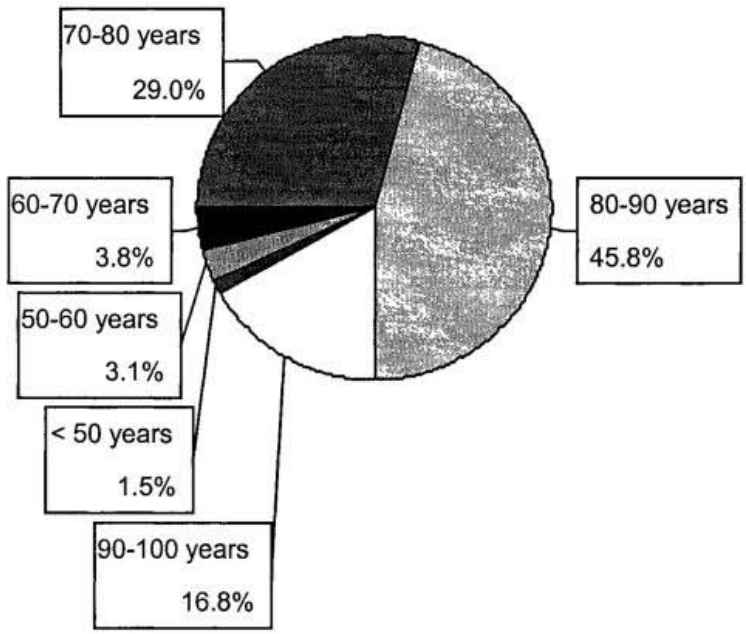


Fig 4.28 LTC clients optimally placed in special facilities for the cog. impaired: Age Groups

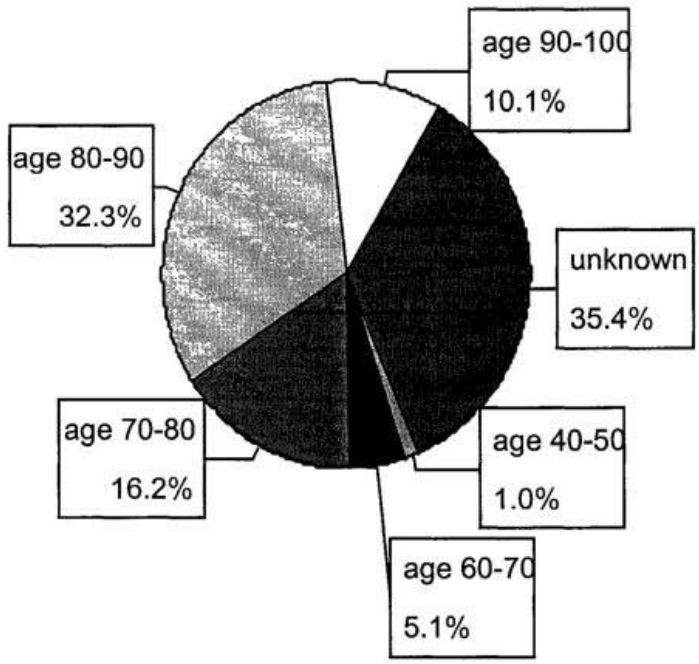


Fig 4.29 LTC clients optimally placed in facilities for the cog. impaired: RUG-III characteristics

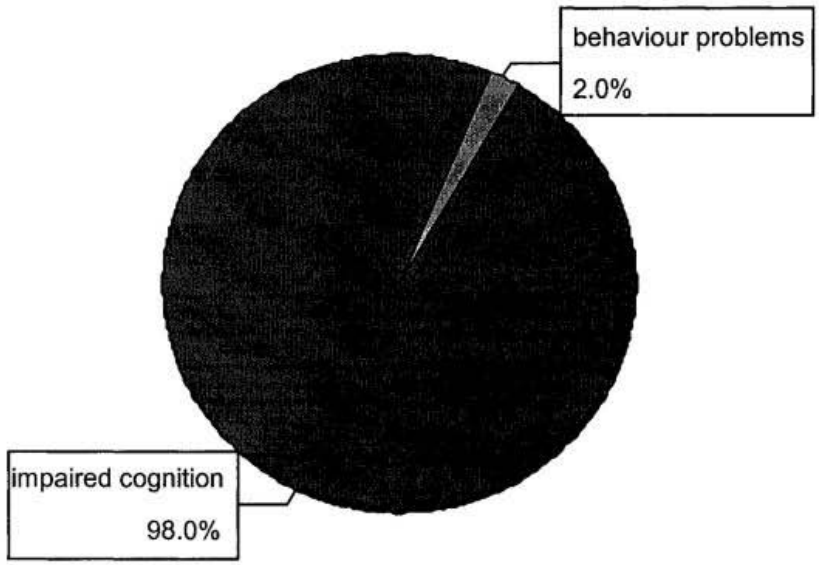


Figure 4.30 LTC clients optimally placed in NH Age Groups

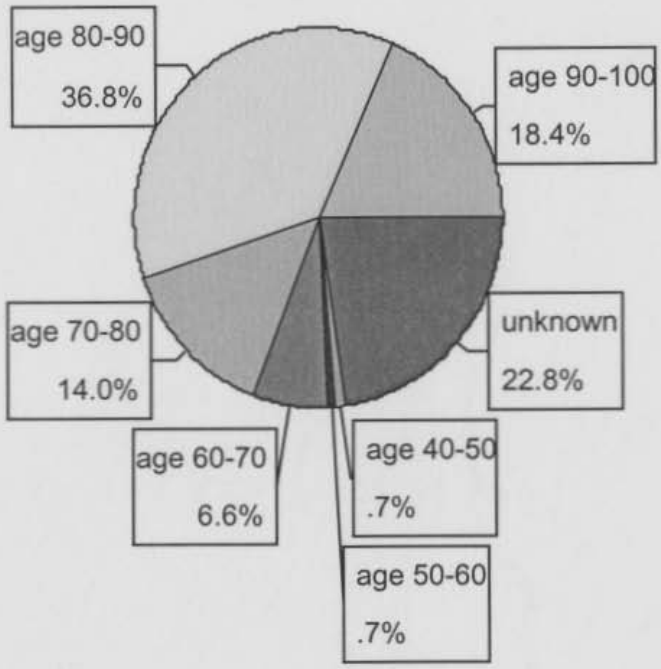
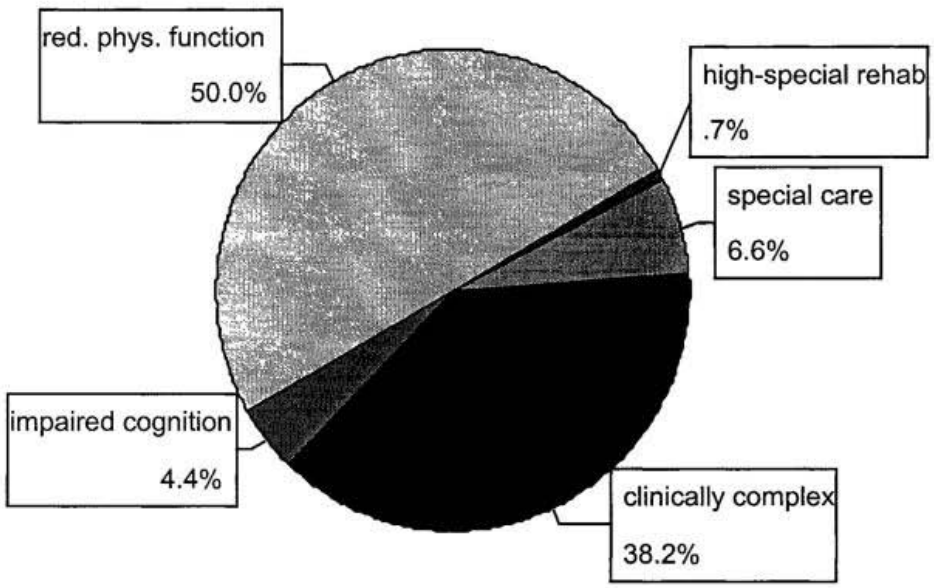


Figure 4.31: LTC clients optimally placed in NH

RUG-III Characteristics



4.4.1 Using the decision algorithm to determine future LTC bed requirements (Table 4.3)

As mentioned in the previous section, optimal placement for LTC clients would be 36% in SC, 27% in specialized facilities for the cognitively impaired and the remaining 37% in NH. In a population of 7700 $\geq$ 75 years this translates into an annual incidence of 144 clients for SC [(131)(100)/91], 109 for facilities specialized in the management of cognitive impairment [(99)(100)/91], and 149 for NH [(78+58)(100)/91] . By 2007 it is anticipated that the population $\geq$ 75 years in the St. John's region will be 10782. The mean survival of the clients designated by the decision tree to require SC was 3.05 years, the mean survival of those who should be placed in special facilities for the cognitively impaired was 2.64 years, and the mean survival of those who should be placed in NH was 2.30 years.

For an optimal system the number of SC beds required for a population of 10782 $\geq$ 75 years in 2007 would be:

[(annual incidence)(projected population) / (present population)] [survival] =

[(144)(10782)/ (7700)] X 3.05 = 615 SC beds

For an optimal system the number of specialized facility beds for the cognitively impaired required for a population of 10782 $\geq$ 75 years in 2007 would be:

[(annual incidence)(projected population) / (present population)] [survival] =

[(109)(10782)/ (7700)] X 2.64 = 403 specialized facility beds

For an optimal system the number of NH beds required in 2007 would be:

[(annual incidence)(projected population) / (present population)] [survival] =

[(149)(10782)/ (7700)] X 2.30 = 480 NH beds

Table 4.3 FUTURE PROJECTIONS OF BED REQUIREMENTS

I. Using Present Methods of Placement

	Projected need for beds for clients entering LTC in 2007/8	Number of LTC beds currently available in St. John's Region* (1995/96)	PROJECTED BED DEFICIT (2007/8)
NH	*1080*	*1048*	*32*
SC	*430*	*334*	*96*

II. Objective Criteria (Decision Analysis) used to determine need for placement (with no specialized facilites available)

	Projected need for beds for clients entering LTC in 2007/8	Number of LTC beds currently available in St. John's Region* (1995/96)	PROJECTED BED NEED (2007/8)
NH	*883*	*1048*	*165 SURPLUS*
SC	*615*	*334*	*281 DEFICIT*

*Using previous boundaries (See Appendix I)

Table 4.3 (Continued)
FUTURE PROJECTIONS OF BED REQUIREMENTS

III. Objective Criteria (Decision Analysis) used to determine Need for placement (Specialized facilities available)

	Projected need for beds for clients entering LTC in 2007/8	Number of LTC beds currently available in St. John's Region* (1995/96)	PROJECTED BED DEFICIT (2007/8)
SC	*615*	*334*	*281*
Specialized Facilities	*403*	*0*	*403*
NH	*480*	*1048*	*SURPLUS 568*

*Using previous boundaries (See Appendix I)

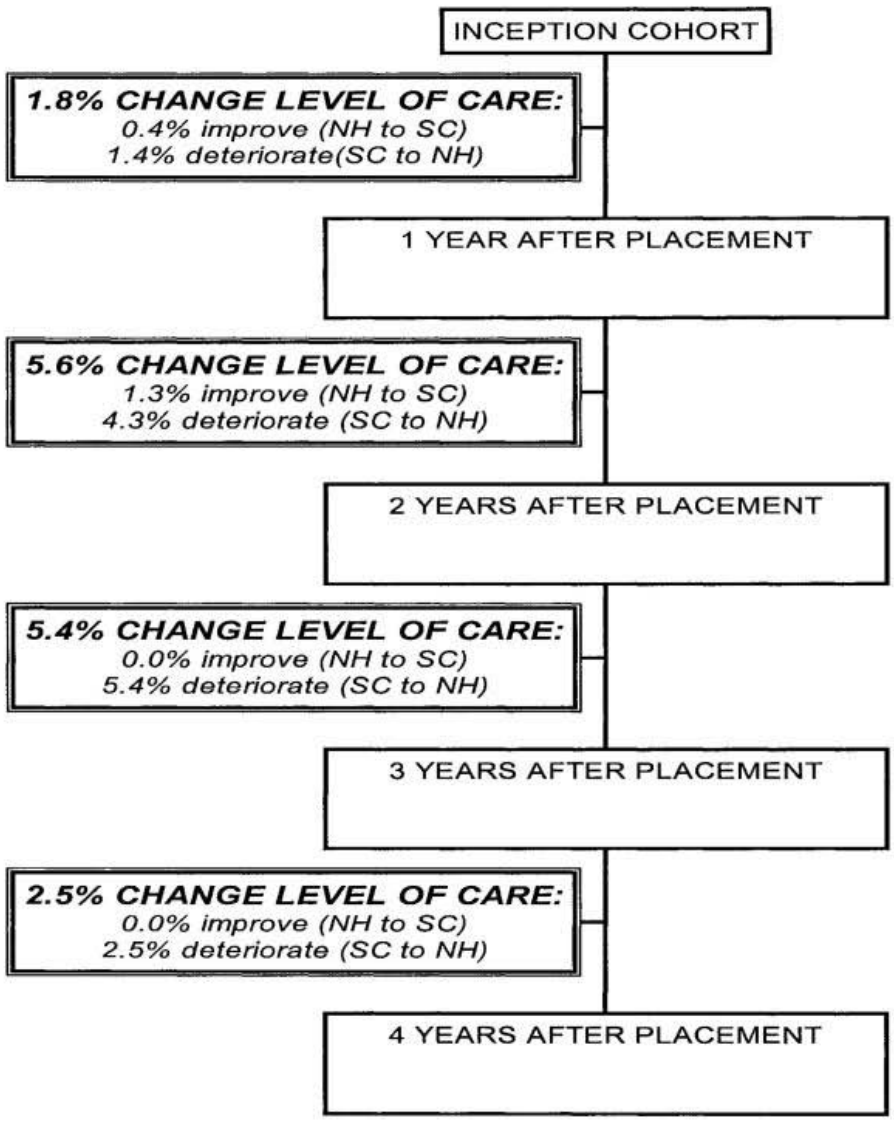
As is demonstrated in Table 4.3, using present methods of placement, there wll be a large deficit in both NH and SC beds by 2007. If the decision analysis is applied (ie. objective criteria are used to determine appropriateness of client placement to LTC) but there are no specialized facilities for the cognitively impaired (ie. The cognitively impaired will continue to be placed in NH), there will be a continued deficit in SC beds (281) but a surplus of NH beds (165). However, if facilities are developed for the cognitively impaired, there will be a large surplus of expensive NH beds (568) and continued deficit of SC beds (281) and need for 403 specialized facility beds. Although it may seem initially that these facilities for the cognitively impaired may be expensive, they are probably not only more appropriate for the cognitively impaired, but also more cost-effective than NH beds (72), discussed further in Section 7.4.

4.5 TRANSITIONS BETWEEN LEVELS OF CARE

4.5.1 Transitions of clients between NH and SC (Figure 4.32)

Although clients are not formally re-evaluated after placement in LTC, there is some movement of a few clients annually between NH and SC. Although most clients deteriorate to eventually requiring a higher level of care, there is also some improvement. It appears that some also improve to the point of being able to move from NH to SC. This could reflect either client being inappropriately placed in a higher level of care initially, or it could reflect improvement in clients' functional status.

Figure 4.32 Transitions between NH & SC



4.5.2 Transitions between NH and SC if RUG-III are applied at placement and clients are re-evaluated after placement (Figure 4.33)

In the present system, clients are not re-evaluated after placement. It was demonstrated in Section 4.5.1 that a small number of clients do change level of care and in fact some improve.

RUG-III criteria were applied to the original Inception Cohort (n=297). 110 were found to have no RUG-III criteria. The remaining 187 clients were re-evaluated two years and four years after placement. After evaluating the RUG-III categories and considering what is currently available in the community, SC and NHs, we made the following designations:

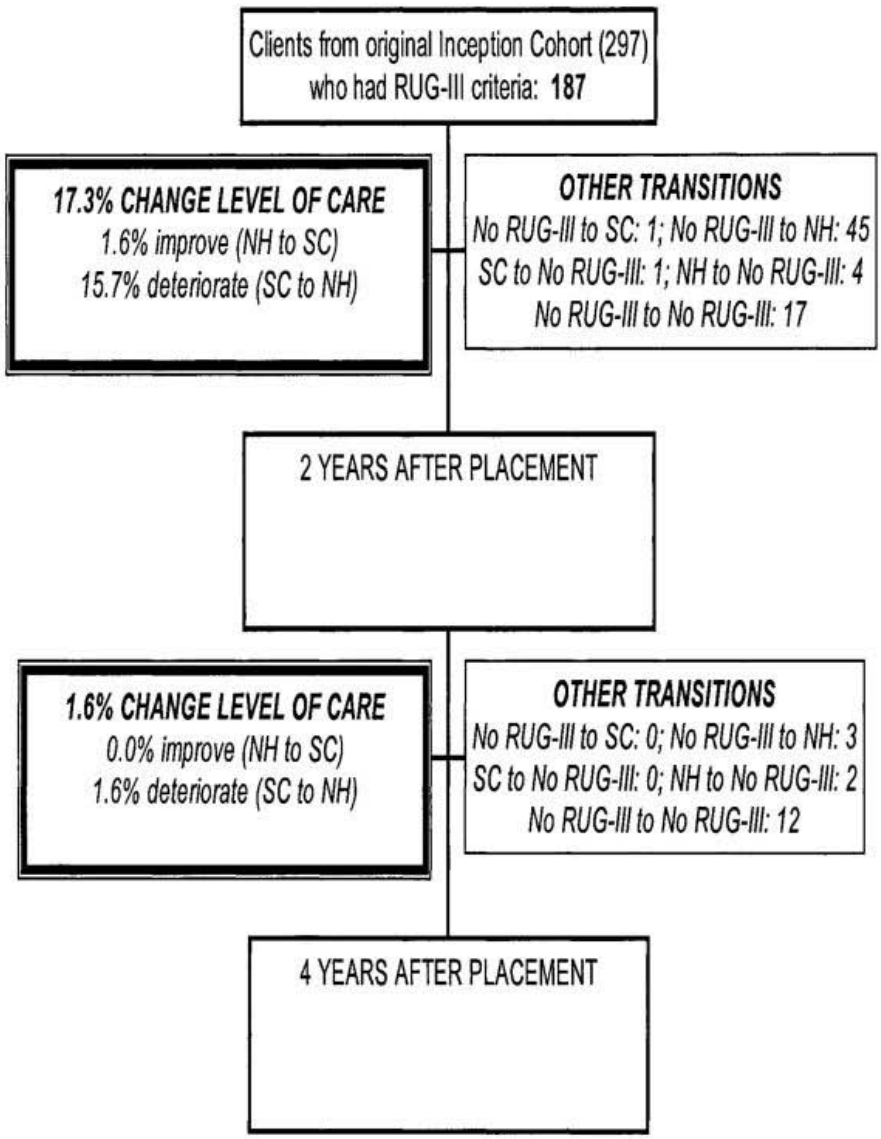
No RUG-III criteria: need for low levels of care; ie. SC

Any RUG-III criteria: need for higher amounts of care; ie. NH

With this formal re-evaluation it appears that quite a large portion (17% compared with 1.8% with present methods) of clients change level of care, especially between the first two years of placement. Almost 2% improve from NH to SC, and if the clients who improve to scoring no RUG-III are included, almost 6% of clients may improve to the point that they can move to SC or back to the community. After four years of placement, although no clients improve status from NH to SC, 2 clients (3%) improved from NH to scoring no RUG-III (i.e. no need for institutional LTC).

Present methods of placement are very likely underestimating client functional transitions, including the important portion of clients that improve and may no longer require such intensive, expensive care.

Figure 4.33 Transitions between levels of care if RUG-III applied at placement



N.B. At Year 2, there were 11 clients with unavailable RUG-III data; at Year 4, there were 6 clients with unavailable RUG-III data

4.6 PREDICTORS OF MORTALITY

Univariate analysis revealed several predictors of mortality in institutional LTC, including gender, age, RUG-III criteria at placement and the type of facility from which the client was transferred. The type of facility in which the client was placed was not an independent predictor of mortality.

In spite of the survival predictors at univariate analysis, multivariate analysis was revealed that only gender (chi^2, 8.15, $p<0.01$) and age at placement (chi^2, 7.71, $p<0.01$) were independent predictors of mortality. Neither RUG-III criteria at placement, the type of facility in which the client was placed, and facility from which the client was transferred from were statistically significant predictors of mortality.

Male sex, advancing age and functional ability have repeatedly been found to be independent predictors of mortality in LTC institutions (Section 5.2.2). Since RUG-III criteria did not predict mortality, RUG-III criteria alone may not adequately reflect function, thereby reinforcing the need to use other criteria to determine function (such as the ARCS to designate level of disability, and subsequently use the Decision Algorithm). In addition, it appears that with the current methods of placement, neither the place from which the client was transferred from nor the type of facility to which they were placed accurately reflects the client's functional status.

4.7 DEFICITS IN THE CURRENT SYSTEM

In conclusion, in the St. John's Region, there appear to be:

1. Lack of objective criteria to appropriately evaluate the needs of clients seeking institutional LTC.
2. Failure to examine other options to institutional LTC once a request has been made.
3. Lack of follow-up of clients' needs once they have been placed in institutional LTC.
4. Inadequate available housing alternatives to institutional LTC.
5. Inadequate available housing alternatives particularly for the cognitively impaired.

4.8 SOURCES OF ERROR

- The assumption that RUG-III and ARCS are valid and reliable instruments to determine appropriateness of client placement in institutional LTC
- Classification of client needs were taken from staff rather than from direct observation of the clients
- Assuming that the estimate of annual demand is accurate and consistent yearly
- Assuming the degree of disability and mortality following assessment will be constant over time
- The four year follow-up minimizes the impact of the minority who live for a longer time

- Assuming that current residents will die at the same rate as new clients. It is possible that current residents with little disability will die slowly.
- The projected bed deficits for the present system assume that there will still be no alternatives to NHs and PCHs
- Several assumptions were made during forecasting demands for 2007/8:

➢ The population projections to 2007 for the province of Newfoundland are accurate

➢ The population projections to 2007 for Newfoundland accurately reflect population trends for the St. John's Region

➢ In order to project the population of LTC clients over twelve years, and for ease of calculations, a linear annual 2.7% population growth was assumed (rather than using the more likely exponential growth in elderly clients that is projected to ultimately result in 32% growth in twelve years)

➢ Both NHs and SC would equally experience this 2.7% annual growth over twelve years.

V. NATURAL HISTORY OF LTC CLIENTS

5.1 THE ST. JOHN'S REGION

There was a 27% overall mortality after the first year of placement in an institutional LTC facility (mortality rate was 31% for NH clients and 16% for SC clients) and a further 17% mortality (26% for NH clients and 22% for SC clients) after the second year.

Extrapolation of the survival curves of the inception cohort (Figures 4.8, 4.9, 4.10) compared approximate mean life expectancies for clients after placement in NH (2.36 years) versus SC (3.08 years). It also appears that clients who apply for institutional LTC have approximately the same number of expected years of life remaining (i.e. about five years), regardless of where they eventually reside or functional status. Multivariate analysis of the inception cohort (n=366) in our study showed that institution (NH vs SC) was not an independent risk factor for survival when compared with age, gender or RUG-III criteria.

This brings the questions of what the predictors of mortality are, especially in the institutional LTC population, and whether functional status impacts on mortality. Consequently, it is fundamentally important to maximize the quality of these remaining years by placing clients in environments which promote independence and enhanced quality of life.

5.2 STUDIES ON NATURAL HISTORY OF THE ELDERLY

5.2.1 Changes in care requirements over time

The fact that many clients of NH improve function after placement and transitions between levels of care occur has been well established. Some aspects of functional status (hygiene, dressing, grooming and transferring), as well as depressed mood, are likely to improve shortly after NH admission (37). One study of over 9,500 elderly clients admitted to a NH for at least 100 days found that 51.5% experienced a change in function during the first 90 days. This change in function usually represented improvement in function rather than decline. 37% of this long-stay client sample, in fact, was able to return home (38).

5.2.2 Predictors of mortality

Predictors of mortality in the elderly have been shown in several studies to be increased age, male sex, poor physical status, poor social supports and poor cognitive functioning (39,40,41). Few studies, however, have investigated predictors of mortality specifically in the NH population. A prospective cohort study of 399 NH clients (followed up for eleven years) revealed that the mean duration from baseline to death was 2.75 years. For cognitively intact clients, significant predictors of mortality were male sex, larger number of medical diagnoses and non-aggressive behavioural disturbances. For cognitively impaired clients, significant predictors were increased age, reduced ADLs and behavioural disturbances. Cognitive impairment in itself was found to be a significant predictor of mortality in this study (42) and in other large trials (43).

Several studies have found reduced functional ability to be a predictor of increased mortality in the elderly in the community (44,45,46), in acute hospitals (47) and in NHs

(48). A longitudinal study of 9264 clients with Alzheimer's dementia in NHs in the U.S. revealed that the strongest predictors of mortality in this population were age, male sex, functional limitation and malnutrition (49).

The majority of deaths in NHs occur in the first year after placement (50) and this was reflected in the St. John's Region. We can probably expect that if objective criteria are implemented to select appropriate clients for NH admission that the NH population will eventually contain only the most disabled clients, and one may estimate that mortality rates in NHs will thus be affected. However, mortality in NHs seems to be fairly constant even when the case-mix is sicker overall. For example, a retrospective chart review of all 1605 NH clients in Minnesota indicated that although average severity of client illness increased between 1984 and 1988, it had only a modest effect on the mortality rate (51).

5.2.3 Effect of LTC environment on morbidity and mortality

There is little data on how different levels of LTC and new alternatives to institutional LTC may affect the natural history of elderly clients.

One recent study has compared the effects of living in a NH (350 beds) versus an assisted living (AL) facility (60 beds). The clients in both facilities were similar at baseline with respect to age, gender, marital status and cognitive status. Clients differed at baseline in terms of education (AL clients were more educated), length of stay (the entire population of the AL facility was new; 34% of the NH population was new), pay status (AL clients were more likely to pay privately for their care), functional ability (AL clients had higher scores) and depression (NH clients reported more depressive symptoms). After 15 months, there was no significant difference in mortality rates or

rates of relocation between the two facilities. Logistic regression analysis took into account the influence of the variables that different between clients in each facility at baseline. Ultimately, the sole significant predictor of mortality was age (52).

Generalizability and limited power are concerns with this relatively small study done on only two facilities. However, there appear to be very similar outcomes over time for NH clients compared with AL clients (52). This is a compelling rationale to devote more funding and research to facilities such as AL which promote independence to the client, and away from expensive institutional LTC. Further evidence-based criteria need to be available to confirm this.

VI. WHY ARE CLIENTS INAPPROPRIATELY PLACED IN HIGH LEVELS OF CARE?

It is well documented in several studies that a large percentage of elderly clients throughout North America (10 – 52%) do not have the medical need or are not sufficiently disabled to justify placement in high level of care settings such as a NH (13,53,54,55).

The placement of low-care clients in NH is often assumed to indicate inappropriate and inefficient use of NH resources (56). In addition, it is well established that disabled clients prefer to be cared for in their own homes and other community rather than in NHs (57). So why do clients in the St. John's Region continue to be placed in high levels of care that they do not need?

6.1 REASONS FOR INAPPROPRIATE PLACEMENT

1. Subjective placement criteria. As discussed in Section 1.3, the process of client placement does not explore the possibility that the client may best be cared for outside of a LTC institution. In addition, even when clients truly do need NH care, the definitions of the various levels of care are vague and difficult for the placement committee to consistently adhere to. Since there are no objective criteria that state who should go to what level of care, the same client may be placed in different levels of care depending on who the decision-maker is.

Therefore, it is likely that there is not only a portion of clients that require no institutional LTC, but that of the clients that do require it, many may be placed in levels too high for their requirements.

2. *The client, their family, and their physician may be unaware of the full range of alternatives to institutional LTC (58).*

Since there are multiple points of entry to the LTC sector depending on which type of care one is requesting, it is quite easy for a client to not be fully informed of all his/her options. A single-entry system to the full range of LTC alternatives would alleviate this problem, in that it would be a form of 'one-stop shopping' where one committee informs and evaluates a client for all possible choices.

3. *There are no PCHs in the city of St. John's.*

The only SC beds in the city of St. John's are 10? Level 1 beds in NHs. The other SC beds are PCH beds outside the city. Since PCHs are private, for-profit facilities, the reason they are not in the city is likely due to poor financial incentives in an environment with high land costs and high city taxes.

Since PCHs are only situated outside of the city, they may not be a viable option for clients who are from St. John's and whose families are in St. John's. This contributes to the long waiting times for SC in St. John's (7) and hence another incentive for clients to be placed in a higher, more readily accessible, level of care.

4. *Negative perceptions of PCHs.*

Interviews with several clients in the St. John's Region have revealed that they and their families often may prefer NH placement regardless of the clients' needs. Many clients that were interviewed were that ongoing quality of care initiatives and standards

were likely to be better in NHs, which are publicly funded and administered, than in the PCHs, which are privately managed (58).

5. *Inadequate alternatives to institutional LTC.*

There are no alternatives to NHs or PCHs in the St. John's Region. There are a large number of clients who are placed on the waitlist for institutional care in the St. John's Region who have only minor disabilities and do not require professional nursing care. These clients may have some deterioration in functional status as well as having social reasons (loneliness, not wanting to be a burden, fear of becoming ill) for seeking placement (58).

However, it is not satisfactory just to reduce the number of institutional care beds in an attempt to redistribute funds to the community. Alternatives have to be in place first. A few decades ago, many psychiatric institutions were shut down in an attempt to re-establish their clients in more appropriate community settings. However, adequate community replacement support was not established, and there are concerns that the same fate may occur to the long-term care system (59). It is therefore essential that there are enough alternative options available to elderly clients seeking help. Low-care options, such as adequate community care, need to be available.

6. *Public financing of LTC favours both of the following:*

- *NH placement over PCH placement.*

Public financing favours client placement in high levels of care rather than in lower levels. There is a financial incentive for NH to select low-needs clients for the

higher-level of care beds. If NHs are paid a flat *per diem* fee and placement screening processes continue to be subjective, then there is an incentive to preferentially place light-care cases; they require relatively little staff time and the payment for their care will be that of an average (and heavier care) client (55).

- *Institutional LTC over community-based care.*

Home care has long been under-funded as compared with institutional care (60). In fact, only 2% of the Canadian health care budget is allocated to community-based care (61).

If a client wishes to remain at home, it is most likely that he/she will be cared for by a family member. Family caregivers provide 80-90% of care at home to the impaired elderly (62). The long-term economic effect of caregivers has not been assessed. Family caregivers are not reimbursed and often it is difficult to maximize home care unless private care is hired. Hiring private care is often impossible since many elderly clients cannot afford it. In the U.S., for example, 40% of peopled over 65 years live below 150% of the poverty line, and 32% of all family caregivers live at or below 125% of the poverty line (63). Elderly clients should not have to be admitted to NHs solely because their families can no longer afford to provide care for them (63).

6.2 ARGUMENTS AGAINST SHIFTING THE FOCUS TO LOWER-CARE ENVIRONMENTS

Although we can identify the population that is inappropriately placed in high-care levels, it is challenging to design policies encouraging the use of lower levels of care. Several arguments may potentially be made that impede design and implementation of such policies:

1. *If subsidies are expanded from high levels of care to lower-care settings, public costs may not actually decline because:*

   (i) Lower levels of care may not actually be less expensive for everyone.

Although cost per day of community-based services is equivalent to cost per day of services in an institution, no studies have actually compared costs between clients who have the same level of needs (64). More research needs to be done regarding this aspect.

It is suspected, however, that community care will be shown to be cost-effective. In addition, there are numerous other benefits, apart from financial, to avoiding institutionalization unless absolutely necessary, such as a less restrictive environment and improved quality of life. Staying at home is practically always preferable to living in an institution (65).

(ii) *The lower cost of lower-care may be offset by increased demand*

Cost-savings of increasing community services will only be achieved if benefits are targeted specifically to clients who would otherwise be placed in NHs. It has been shown that costs of increasing public financing of home care have not correlated with a reduction in the use of NHs, largely because of imprecise targeting (64). This crucial

concept of 'targeting' to high risk or more appropriate groups in order to improve the efficacy of interventions in the geriatric population has been well established (66,67,68).

2. *If objective placement criteria are made too restrictive, even appropriate clients may be denied LTC placement (56).*

Once again, this has occurred elsewhere primarily because placement commitees have not targeted well (13) and also because the most appropriate assessment instruments may not have been used to determine placement. It is vital to target the appropriate client population, screen using appropriate methods, and, very importantly, to expand public financing to lower levels of care and provide alternatives to institutional LTC.

3. *Low-care environments are subject to less stringent quality control than NHs.*

One concern of consumers of LTC has been the difficulty of assessing quality in lower levels of care and interviews with clients in the St. John's Region confirmed this concern (58) (Section 5.1, #4). Quality of care in PCHs and home care has traditionally been far less regulated than in NHs, and this may discourage clients from using these lower-level of care environments (13).

However, NH regulations have centered primarily on technical care, and only recently have tried to focus on quality of life. Lower levels of care provide less technical care, but also provide less restrictive environments. It will be challenging for policy makers to find the appropriate balance between adequate regulations to protect clients and the market forces that create an adequate supply of lower levels of care (13).

4. *It is riskier to place clients in lower levels of care than in high-care levels.*

The concept of targeting is again important; it is crucial to appropriately select clients for placement in lower levels of care.

It has been suggested that there may be an increased health risk associated with placement of elderly clients in low levels of care, such as in SC; however, it has been stressed in the literature that it is fundamentally important to allow clients or their families to have a voice in care and placement decisions, even if it involves assuming some level of personal risk (69). Persons with identical disabilities may value quality of care and quality of life differently, leading them to choose different care settings. Therefore there may be individuals who, although meeting the clinical criteria for NH care, would be willing to accept the additional risk of placement in a lower-level setting because they value the benefits. So lower level of care would be more appropriate. Therefore the number of persons who could be appropriately placed in a lower level of care may exceed our estimates (13).

VII. A SIGNIFICANT GROUP: THE COGNITIVELY IMPAIRED

7.1 WHY IS THIS GROUP SO IMPORTANT FOR LTC PLANNING?

The characteristics of the current and potential clients of LTC facilities have been described. If objective criteria are applied to clients who request institutional LTC in the St. John's Region, it is apparent that over one-quarter suffer from cognitive impairment but are relatively physically well. In addition, of the portion of clients that is most likely to be inappropriately placed in high levels of care (the Moderately Disabled group), the majority are cognitively impaired but physically well.

Similar findings have been documented elsewhere. A study of 2285 admissions to 59 NHs in the U.S. between 1992-1995 found that the prevalence of dementia (as diagnosed by an expert panel of geriatric psychiatrists, neurologists and a geriatrician) was 48.2% (70). Another study of a cohort of dementia admissions to a nationwide U.S. sample of NHs showed that the majority of clients with dementia had fewer co-morbid physical health conditions than did the typical NH admission (71). It has been suggested that this portion of the physically intact cognitively impaired clients presently placed in, or waiting to be placed in, NHs could properly, and perhaps even more appropriately, be cared for in lower care environments or in specialized facilities such as assisted living, resulting in substantial cost savings (72).

Consequently, the cognitively impaired elderly population is an important group that must be addressed, as it will only continue to grow larger as the population with dementia increases.

7.2 DEFINITIONS AND EPIDEMIOLOGY OF CLIENTS WITH DEMENTIA

Approximately 50-70% of all clients in NHs in Canada and the U.S. have some form of diagnosed dementia (73,74,75). The actual number of clients with possible dementia may be even larger if estimates include not only formally diagnosed conditions but also clients with any cognitive impairment (76).

Dementia is defined as a disease that impairs not only memory but also intellectual and functional capacity, and results in behaviour disturbances and personality changes (77). Since the incidence of dementia correlates with advancing age, as the overall Canadian population continues to rise the number of people with dementia will also rise. 8% of people $\geq$65 years have dementia, and because women tend to live longer than men, almost 68% of people with dementia are female.

Cognitive impairment is a broad term that includes people with dementia. There is a group of people who have some cognitive impairment but not dementia (CIND). The prevalence of CIND in Canadians $\geq$ 65 years was found by the Canadian Study on Health and Aging to be 16.8%, which is twice that of all types of dementia combined (78). Patients with CIND were three times more likely to be living in institutions that were cognitively unimpaired patients and CIND was related to some degree of functional impairment in these elderly clients (78).

Alzheimer's dementia (AD) is the cause of 64% of dementia cases in Canada. The cumulative incidence is nearly 19% by age 80 and 49% by age 90 (79). Women with AD live longer with their disease than do men. Once diagnosed with AD, elderly persons are expected to spend a substantial portion (estimates range from 10% to 60%) of their remaining lives in institutions (79).

Because it is so incapacitating, dementia is one of the principle reasons for institutional placement of the elderly (80,81). Clients with debilitating cognitive impairment will be increasing dramatically in the near future, and this population therefore requires immediate and creative housing solutions. Focus as also recently been on provide support for families so that clients with dementia can remain in their own homes for longer periods of time. One randomized controlled trial of 206 spouse-caregivers of Alzheimer's clients over 3.5 years assigned the intervention group to a program of comprehensive support and counseling and the control group to usual care. The median time from baseline to NH placement of Alzheimer's clients was 329 days longer in the intervention group than in the control group ($p=0.02$) (82).

Clients requesting LTC are not always thoroughly evaluated for the presence of cognitive impairment. Cognitive impairment spans a broad spectrum of strengths and disabilities and may not always be obvious without formal testing. In addition, many causes of cognitive impairment (for example, medication misuse or overuse, treatable psychiatric diagnoses such as depression, treatable medical diagnoses such as hypothyroidism) are reversible and after appropriate medical or psychiatric evaluation may preclude the need for NH admission.

In 1991, nearly 50% of Canadians over 65 with dementia were living in the community and the remaining 50% were living in institutional settings such as NHs or hospitals. Until recently, there were few residential alternatives (73).

7.3 HOUSING FOR THE COGNITIVELY IMPAIRED

It has been acknowledged that the LTC sector worldwide will ultimately need a range of housing options, such as for clients with dementia (3,83). Cognitively impaired clients require specialized services to maximize their functional potential. They do not necessarily simply need a high level of care NH that lacks dementia-specific activities. However, it is also not adequate to simply place these clients in SC or in the community, without having adequate facilities.

Over the last twenty years, numerous "dementia design guides" have been published. Some of the recommendations of these guides are not based on evidence, for example, essential qualities of dignity and privacy (84). It is essential, however, that other recommendations be empirically based. Most studies on housing for the cognitively impaired are observational, since randomized controlled trials or other interventional studies of dementia design are difficult to do (85). However, there is quite a large amount of literature describing appropriate planning principles, the relocation of cognitively impaired clients to new locations (86), respite care, Special Care Units (discussed in Section 6.3.2.2), group sizes and general attributes of the environment (84).

7.3.1 Important considerations when designing housing for the cognitively impaired

There is some evidence that cognitively impaired people fare better when in living environments devoted exclusively to those with cognitive impairment, rather than a mixture of cognitively intact and impaired. It would therefore be ideal if some residences were devoted exclusively to the care of the cognitively impaired. It has been shown that

residents with dementia participate more frequently in the activities of units that have greater separation of residents with and without dementia in social activities and physical space (87). Separation of residents also allows less overwhelming auditory stimulation and offers less complex planned activities (76).

Residents with dementia also participate more frequently in the activities of units with better staff training in dementia care and in units with activity programs that are more tailored to individual residents' cognitive and functional capabilities (87). A study of 400 nursing units in 124 Minnesota NHs revealed that better staff training in dementia is associated with lower turnover among nursing assistants in NHs (88,89). Consistent patterns of staff assignment benefit those clients with dementia, and specially trained staff are more tolerant of potentially problematic behaviours among dementia residents (76).

There is currently no "gold standard" of what should constitute a special dementia care unit and types of units are diverse. According to the Canadian Mortgage and Housing Corporation's publication 'Housing Options for People with Dementia' (1999), there are some essential principles to be adhered to when planning new or renovating existing housing for people with dementia. These include properly assessing potential clients, selecting well-trained staff, being adaptable and flexible, providing appropriate activities, maintaining family contact and remaining integrated into the community (90).

Key problems in designing living spaces for clients with dementia include the potential for clients that wander, have difficulty with ADLs and pose safety concerns (90). NH staff have indicated that the most difficult clients to care for are those that have behavioural disturbances but are physically relatively well, because these clients are able

to wander and can be physically aggressive (91). Major issues in dementia planning include making a home dementia-friendly, designing new or adapting old facilities, safety and appropriate exits (90).

7.3.2 Types of housing models for the cognitively impaired

Novel ideas for residences for clients with dementia continue to develop. New facilities can be constructed and/or the environments of existing LTC facilities can be made more 'dementia-friendly' by being adapted to suit the abilities of individuals at various levels of severity of cognitive impairment.

7.3.2.1 Assisted Living (Supportive Housing)

There is no uniform standard definition of what constitutes assisted living (AL). It is broadly defined as a combination of housing and supportive services designed to provide care to individuals who require assistance with the tasks of daily living, but who do not generally need the level of skilled nursing care provided in NHs (92). Therefore, while AL facilities provide some assistance to clients, they also promote client independence (93).

AL is the fastest growing segment of residential LTC in the U.S. It is a growth industry and is being heavily marketed in the U.S. as the first step in the continuum of institutional LTC. Minimum care guidelines for the industry are being developed in many states (93). There are 21 000 AL facilities in the U.S and while 90% of them have fewer than ten clients, it is the larger facilities that have the fastest growth rate (94).

In 1997, there were over 1 million clients in licensed AL facilities (95) and at least 50% of them had cognitive impairment. The AL industry will undoubtedly have a tremendous impact on the care of clients with dementia (93). AL provides dementia-specialized facilities with space for wandering, specially trained staff, support for families, and appropriate activities. 30% of AL facilities are specialized for dementia care and growth in this area is expected to increase disproportionately to the AL industry as a whole (96).

Dementia residents frequently leave lower levels of care and seek higher levels of care such as a NH. Studies (done prior to the recent growth in AL facilities) investigated the predictors of NH admission for dementia clients. Some studies have identified severity of cognitive deficit as being the most important risk factor for NH placement (97,98). However, many investigators disagree with this idea (99,100) since several other studies have recognized functional status (bowel and bladder incontinence) (101,102), extra-pyramidal signs (bradykinesia and rigidity) (103,104), behavioural disturbances (105) and/ or depression (106) as being significant predictors of NH placement.

A cohort study published this year in the U.S. compared 144 clients in one specialized dementia-care AL facility in Baltimore, Maryland to 737 clients with dementia residing in other locations between 1994 and 1998. The goals of the study were to compare the clinical characteristics and outcomes of clients in the AL facility with clients residing elsewhere, and to determine the predictors of discharge to higher levels of care. Residents in the AL facility relocated to a NH after a median stay of 10.9 months, and the only significant predictors of this transition were frequent falls, wandering and depression (93) (the prevalence of depression in dementia is estimated to be between 30-

50% (106)). None of the other previously cited indicators of NH admission were independent predictors of transfer to NH from an AL facility. Mortality data of ALs showed 2-year death rates of 23% (93), which were much lower than the approximate 50% rate derived from NH survival studies (48). These data indicate that AL provides a setting that is distinct from NHs and care at home, and research is expanding rapidly to further explore the role of AL in LTC (93).

There are no standards to determine which cognitively impaired NH clients could be best served in specialized AL facilities. However, significant components to factor in while determining the appropriateness of placement would obviously not only be dementia severity, but also functional capacity and physical health status of the client (72).

7.3.2.2 Special Care Units

Dementia Special Care Units (SCUs) are segregated units that are devoted only to care of the cognitively impaired elderly. They emphasize client participation in structured group activities and have a more psychosocial approach than non-SCUs (87). In 1974, the first SCU in North America was instituted in Philadelphia (107).

There is conflicting evidence of the outcomes of SCUs. Small observational studies have indicated significant improvements in clients' mental and emotional status, socialization and personal hygiene while reducing weight loss, agitation, restraint use and wandering. Other small studies have shown no effects (beneficial or detrimental) of SCUs, while yet others have shown decreased functional abilities and increased acute hospitalization rates (107). A survey in 1991 compared 307 clients in 31 SCUs with 318

clients in 32 traditional NH units. The results showed no significant differences in weight loss, services provided and use of chemical restraints, but showed improved client mobility, decreased number of medications and reduced use of physical restraints (108). Other investigators in 1998 conducted personal interviews with co-ordinators of all SCUs in Minnesota (n=64) and asked open-ended questions concerning their mandates and criteria for success. The responses of co-ordinators of the 173 nursing units in facilities with SCUs were compared with the responses of co-ordinators of the 135 nursing units in facilities without SCUs. Responses from both groups were essentially the same and were varied, vague and sometimes unrealistic. The investigators concluded that the findings from this study reinforce the lack of clear goals of SCUs (109).

The different outcomes of the varies studies examining SCUs are likely a result of the lack of an exact definition of such a unit (107) and what is considered a SCU varies considerably (84). In addition, most research designates all special features of SCUs (i.e. staffing, design and activities) as one intervention; thus further investigations need to examine the effects of individual features of SCUs (84). Although there is a paucity of evidence confirming improved outcomes of SCUs, there exist thousands of such facilities (110), and further well designed trials are needed to confirm their benefits.

7.4 COST-EFFECTIVENESS

1996 multi-center cross-sectional U.S. study examined costs for caring for clients with Alzheimer's Dementia. Data from this study was used to estimate the potential financial savings that could occur if AL care was substituted for NH care in appropriate Alzheimer's clients. It was demonstrated that showed that13.9% of NH costs could be achieved, making AL a desirable option for certain dementia clients (72).

Little is currently known about the cost-effectiveness of the other models of dementia care (76). Other specialized facilities for dementia clients will eventually likely be shown to be cost-effective due to a combination of lower drug costs and differences in staffing patterns (fewer professionally trained nurses and rehabilitation staff than are currently in NHs). With further development of institutional LTC alternatives, NHs would have a greater role in providing care to more complex clientele, and perhaps the more physically aggressive dementia clients (72).

7.5 A PROPOSAL TO APPROPRIATELY ACCOMMODATE THE COGNITIVELY IMPAIRED IN THE ST. JOHN'S REGION

There are several ways to approach the issue of housing in the St. John's Region for the cognitively impaired but physically well group:

1. Assisted living (supportive housing) facilities must be developed.

It has been shown that supportive housing is more economical to society than expensive NH environments (72). In addition, quality of life is enhanced in a supportive housing environment, where clients maintain independence while feeling the security of available support services.

2. Some existing PCHs can be specially adapted solely for those clients with cognitive impairment.

As discussed earlier, cognitively impaired clients tend to have better outcomes when they are not placed in n environment with clients that are cognitively well (87). Environmental changes will need to be made to these PCHs as well as some structural modifications as described in several design manuals (90). Additional staff will need to be hired and appropriately trained to work with the cognitively impaired, but professional nurses are not often required. Although this initially may seem to entail great expense, overall savings will likely occur due to the reduced number of clients being admitted to high level NH beds. When in the appropriate environments, the cognitively impaired will very likely also require less medications and less professional care, ultimately leading to cost savings for society.

3. Specialized wings in the current NH's can be converted into specialized dementia units.

Although the effectiveness of SCUs are under investigation, well-designed trial will eventually probably show improved outcomes for the cognitively impaired in these units as compared with traditional NH units. There are extensive publications on how to convert current NH units into 'dementia-friendly' ones (90). Adaptations can be fairly easy and inexpensive to create, as long as three crucial components of dementia care are addressed: 1. Environmental design (which can be made through architectural, interior, and landscape design) 2. Program development and 3. Staff education (76). By taking the time, energy, and finances to invest in these specialized units, society will be saving financially while maintaining the dignity and quality of life for our elderly.

7.6 SUMMARY

A large portion of clients placed in institutional LTC in the St. John's Region who have disability suffer from cognitive impairment.

Housing for clients with dementia presents a major problem for both the individual and society. It is crucial to note that not all cognitively impaired clients have the same needs or problems. It is fundamentally important, therefore, to build the maximum amount of flexibility into housing solutions for people with dementia. Designers have to be aware of the need to create barrier-free housing that can be easily adapted to the differing needs of clients (90). Targeting and customizing housing to the stage of cognitive impairment is an important aspect of environmental design (84). Governments, housing providers, architects, caregivers and other members of the community must explore new cost-effective and appropriate designs and housing solutions for people with dementia.

VIII. CONTROVERSIES AND DIFFICULTIES IN MAKING LONG-TERM PREDICTIONS OF CLIENT NEEDS

Although the predictions for the short-term (i.e. The next few years) are likely to be fairly accurate, over the following decades several other variables will come into play that make longer term predictions difficult. There are different schools of thought and theories on these variables that will influence the needs of the LTC sector in the next several decades.

8.1 NUMBERS OF CLIENTS WITH NEED FOR LTC

(i) The numbers of clients with need for institutional LTC will increase (111); the Expansion of Morbidity hypothesis.

The enlarging elderly population will lead to an enlarging burden of disability and dependency (112). With advances in medical, social, and economic conditions, active-life expectancy has increased (113) and the age of onset of terminal dependency has been postponed; however, the duration of terminal dependency is thought by some to eventually increase (111). There has been an increase in both the hospital length of stay of elderly clients and the proportion of the lifespan spent in long-term hospital care. The number of very old people, including centenarians, has also steadily risen. There is evidence that disability and dependency have also increased. In Canada, up to 80% of the gain in life expectancy consists of increased years of disability (112).

One study in Belfast retrospectively analyzed the charts of 24 117 admissions to a geriatric unit from 1954 to 1986. During this period, the average age rose and so did both median length of stay and portion of the total lifespan spent in LTC (112).

(ii) *The numbers of clients with need for institutional LTC will eventually plateau; the Compression of Morbidity hypothesis (111)*

This theory counters the argument that our society will progressively age, become more disabled and more expensive to care for. The theory is based on the assumptions that human life span is fixed and that chronic disease can be postponed. Therefore, the time between birth and onset of disability increases, and the time between onset of disability and death must decrease. This theory hypothesizes that lifespan is finite so the elderly population will increase to a point, and then plateau. It theorizes that the period of disability and chronic disease will progressively decrease and eventually take up a smaller percentage of the average life span, and therefore the need for expensive medical care with increasing age will actually eventually decrease (111).

Observations by the New England Centenarian Study group show that compression of morbidity does indeed occur among centenarians, but this does not answer the question of what happens to individuals who do not attain such extremes of age (114).

One large survey in the U.S. examined data from three major databases to predict association of health care expenditures with age at death. They concluded that increase in lifespan over the age of 65 years will likely result in higher costs of LTC, but the increase in the number of elderly clients affects costs to a much greater degree (115).

8.2 NUMBERS OF AVAILABLE CAREGIVERS

Informal caregivers (family and friends) in the U.S. provide 71% of LTC and 85% of in-home care (116). About 20% of disabled older persons in the U.S. rely only on formal supports, 16% have formal and informal supports, 35% have only informal supports, and 29% receive no assistance (116).

(i) Informal caregivers, or caregivers at home, will eventually decrease

As the population ages, elderly support ratios (those $\geq$ 65 years per 100 people that are 20 to 64 years of age) in developed countries will dramatically increase over the coming years, suggesting that elderly clients will be able to rely on fewer adults who will be able to provide care for them (3).

Many older people will live alone, since older women often outlive their husbands. Living alone is a major risk factor for NH admission (3). Research has consistently documented that families, especially adult children, are the predominant service and health care providers to the impaired elderly (117,118). 72% of unpaid family caregivers are women, the vast majority of whom are daughters or daughters-in-law (119). However, daughters serving as primary caregivers to their older parents may be limited in the future because of two major demographic trends::

- The trend towards smaller families. This will not only decrease the number of children available to help older parents, but reduce the probability that the children will be female.
- Trend toward increasing numbers of women working outside of the home. 60% of women aged 45-54 years (the age group most likely to have responsibilities as caregivers) are in the labor force (120).

In addition, children often live quite far from their parents, more so than in the past, when they move for job opportunities elsewhere and hence are not available to be primary caregivers (121).

(ii) The numbers of available caregivers will remain the same

Although its seems intuitive, because of the reasons just described, that family caregivers will decrease, formal studies have not confirmed this theory.

The majority of evidence to date has shown that employed caregivers provide about as many hours of assistance as do non-working caregivers, particularly when the caregiver is a woman (122).

One study (based on the National Informal Caregiver Surveys done from 1982-89 on over 1000 caregivers) showed that although full-time employment (compared with non-employment) significantly reduces care-giving time, the effect of full-time employment on informal care-giving by primary caregivers of disabled elderly did not change (123). Part-time employment by caregivers has been shown to have no statistically significant effect on care-giving (119).

However, since the concept of 'caregiver stress' is well documented to increase morbidity and mortality of informal caregivers (124,125), it is hard to imagine that these informal caregivers can continue to work full-time and maintain quality work, quality of care and quality of their own lives.

Either way, it is apparent that neither formal nor informal caregivers can meet the needs of the growing elderly population (126). The key will be more research to better

understand the links between formal and informal supports and to eventually better integrate them (126).

8.3 NUMBERS OF CLIENTS WITH DEMENTIA

Worldwide, nearly 70 million people were aged $\geq$ 80 in 1998. This number is expected to reach 370 million persons by 2050, an almost sixfold increase (127). The incidence of dementia approaches 50% in this "oldest old" population. While aging is the greatest risk factor for dementia, other contributing factors include the presence of head trauma, substance abuse, HIV or other CNS infection, vascular disease, chronic hypoxemia, hepatic and renal insufficiency, and other chronic illnesses.

Treatment advances for these conditions are occurring such that many individuals who have risk factors for dementia are surviving into older age at a rate greater than ever before (75). Current drug treatments provide some improvement in cognitive performance; however, until therapies are developed that actually prevent or significantly slow the progression of dementia, caregivers and the rest of society will face the daunting task of paying for residential care for a majority of dementia patients (72).

So although it is most probable that the incidence and prevalence of dementia will dramatically increase in the future, it is extremely complex to make long-term predictions of actual numbers of clients who will suffer from cognitive impairment and may require LTC.

8.4 MIGRATION PATTERNS IN AND OUT OF THE PROVINCE OF NEWFOUNDLAND

With the collapse of the cod fishery, there was significant net out-migration from the province for several years. However, it is predicted that this out-migration will drop to close to zero over the next two to three years as the economy continues to grow. Significant net in-migration is estimated to begin around 2010 and is projected to become progressively greater over time, as a result of new job openings that are expected to be created as baby boomers retire (128).

These projections are vague, however, and it is difficult to predict long-term socioeconomic trends and make estimates of need for LTC.

IX. CONCLUSIONS AND RECOMMENDATIONS: A PROPOSAL TO RESTRUCTURE THE LTC SYSTEM IN THE ST. JOHN'S REGION

1. Objective Criteria should be applied to determine appropriateness of client placement in institutional LTC.

(i) Why apply objective criteria to assess need?

As previously discussed, 36% of clients admitted to NHs in the St. John's Region in one year do not appear to meet any objective criteria for NH placement. Several more clients are inappropriately placed in levels of care that are too high for their actual needs.

(ii) What specific criteria should be used to determine appropriateness of placement?

Although there are no instruments yet developed for the specific purpose of determining appropriate placement of LTC clients, it seems practical to implement the decision algorithm that categorizes clients by level of disability, then determines whether they need other resources or need for professional nursing care.

The ARCS cannot be the exclusive instrument used to determine need for placement. First, there is evidence that the ARCS may be insensitive to clinical complexity and does not differentiate adequately according to resource utilization (129). Secondly, ARCS has not been validated for determining need for nursing care. However, ARCS is a validated tool for measuring disability and can be probably be used in conjunction with another tool to appropriately determine need for LTC placement.

RUG-III is probably the most reasonable set of objective criteria to use to determine the need for nursing care. The advantages of using an MDS-based instrument are:

- extensive assessment have been performed to provide evidence of the reliability of the overall instrument as well as specific subscales (i.e. RUG-III) (28,32,33,129).
- The MDS has been evaluated and implemented in over 16 countries including the U.S., the U.K., the Scandinavian countries, much of Europe and Japan.
- The MDS can be used within facilities for quality improvement and by regulatory agencies which assess facility performance (29,130). Continuous quality improvement initiatives can at a relatively minor cost using the MDS. As a result, it would be possible to evaluate quality within facilities, as well as between facilities, over time (22).
- The MDS may be used to adjust employee hiring practices to match the distribution of staff skills more closely to the distribution of client needs (22).
- Implementation of the MDS in the U.S. has resulted in increased stability in the functional levels of NH residents and a 27% reduction in the probability of transfer to acute hospitals from NHs (131).

(iii) Clinical Pathways

Clinical pathways (also known as critical pathways or integrated care pathways) may be implemented into LTC decision making to help standardize care through a systematic approach. The use of clinical pathways is well established and they have been shown to help provide high quality care yet are cost-effective (132,133).

Clinical pathways outline clinical standards, based on the best available evidence, for determining care plans for specific groups of clients. They have been used in a wide variety of clinical settings. The pathway forms part of the client's chart and allows documentation of the care given by members of the multidisciplinary team, together with the progress and outcome (134).

Clinical pathways, incorporating the objective admission criteria, can be developed. Pathways facilitate the use of objective criteria guidelines by the multidisciplinary team, as they are locally agreed and are available in the client's chart when decisions are being made (134).

Clinical pathways are a way to standardize care, and standardization of care has been shown to improve outcomes (19). Randomized trials have shown that the use of clinical pathways can improve outcomes (135).

Pathways are also useful for continuous quality improvement. Variations from the pathway are recorded, and therefore the effectiveness of care can be continually evaluated (136,137). This information can then be used to revise the pathway if needed to improve the quality of patient care.

One of the obstacles in predicting future health needs of the elderly is the lack of consistently available quantitative data (121). Clinical pathways are a relatively inexpensive method by which LTC data is continually being collected, so therefore can facilitate future LTC research and planning.

Therefore, application of objective criteria incorporated into critical pathways can be used relatively inexpensively to facilitate:

- more appropriate client placement
- client re-evaluation after placement
- quality improvement
- continued research

2. A true single-entry system should be in place.

The advantages to a single-entry system are discussed in Section 1.2, and the system in the St. John's Region as well as its shortcomings are explained in Sections 1.3.1.1 and 1.3.1.2.

A true single-entry system would likely help make the present system more efficient, allow easier client access and be cost-effective (10,15).

3. Placement committee assessor consistency.

The multidisciplinary team of assessors that determine appropriateness of client placement in LTC should have appropriate instruction, preparation and experience in client selection. The assessors should be educated in client needs, the use of objective criteria to determine need and what determines appropriateness of placement. There should be consistency in the training of these assessors and they should have a clearly defined mandate or set of goals for appropriate client placement. Standardization of assessors is crucial as standardization has been proven to improve outcomes in other settings (19).

4. Client re-evaluation after placement.

Once placed in institutional LTC, clients should be formally re-assessed using objective criteria at least annually. It has been well established that there is a significant proportion of clients that improve function after placement (37,38). There are of course a portion of clients who may be expected to decline quickly or have fluctuating needs and for whom it is not appropriate to be placed in lower levels of care. However, it has been shown that our estimates of client instability has often been too high (13).

5. More LTC housing options need to be available.

It is not enough to deny clients access to high level of care beds without providing alternative options. There is a lack of LTC options for seniors in the St. John's Region. The choices are essentially to remain at home with home supports or admission to a LTC facility (NH or PCH).

Options should be available so that there are:

- Alternatives to long-term institutional placement
- More low-level of care beds available in the city of St. John's
- More options for the cognitively impaired, as this group accounts for a large portion clients placed inappropriately in high levels of care
- Options need to be available for clients who have no disability but require social supports

6. Case-mix funding for institutional LTC facilities

NH beds and some PCH beds, rather than individual clients, are funded. The existing aspects of funding inhibits the growth of LTC options (60), prohibits change in the distribution of institutional LTC beds, and there are incentives for facilities to accept clients with lesser care needs. Although in the past the provincial government of Newfoundland has considered a policy change that would shift subsidies from facilities to the clients themselves, this change has not yet been implemented.

The aim of a case-mix funding system is to provide the appropriate payment to a facility based on the differences in case-mix of clients within the facility. This type of payment system aids in distributing resources based on the needs of individual clients independent of where they live. Consequently, two clients with the same needs should be allocated the same amount of funding, regardless whether one lives in a NH or in a PCH (22). A case-mix system has the advantage of encouraging against present payment systems which do not vary with client care requirements and may provide LTC facilities with incentives to admit low-care clients who cost less.

It has been argued that since case-mix funding may promote undesirable incentives. Since case-mix funding is based on client function, LTC facilities have an incentive to preferentially admit high-care clients since these clients result in higher revenues for the facility. Various approaches have been implemented in certain jurisdictions in order to counter this undesirable incentive. New York State, for example, allows LTC facilities to keep clients' higher case-mix classification for up to 6 months after they qualify for lower payment. Thus, facilities can continue to collect larger amounts of funding even after clients' functioning improves and their care needs

diminish. Similarly, Alberta has chosen to review and adjust client funding only once a year. This reduces the financial incentive for allowing clients to deteriorate, since the funding change usually comes well after the client's functional decline (138).

Different instruments may be used to define case-mix. Alberta, for example, uses ARCS, while Ontario (which previously used ARCS) now uses RUG-III. The use of RUG-III appears to have several advantages over the use of ARCS.The implementation of a case-mix funding system can be complicated. However, NF has the advantage of having no pre-existing case-mix system in place for chronic care, similar to the advantage Ontario had prior to implementing its case-mix system in 1997 (22).

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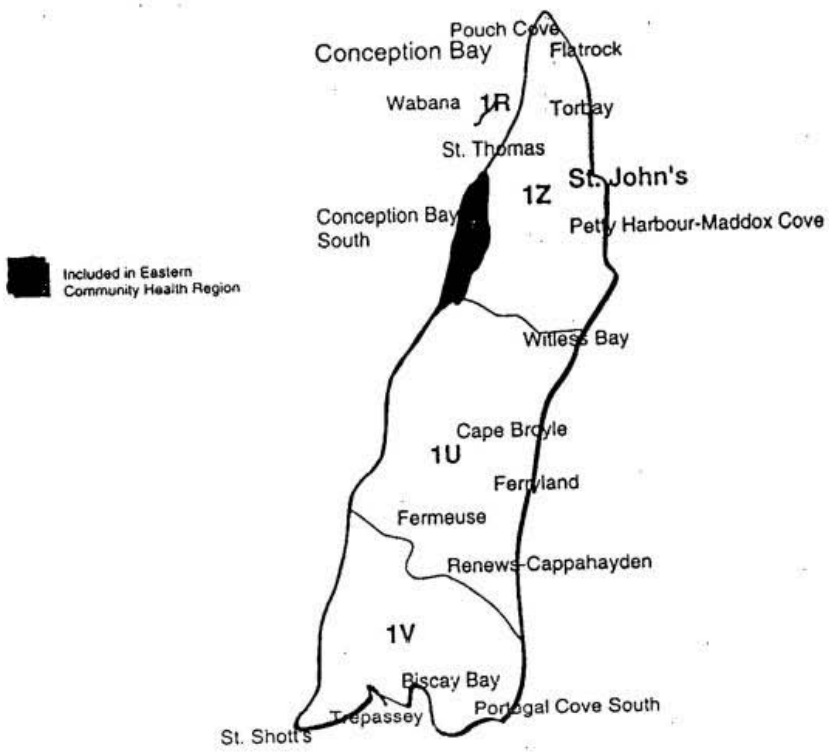
APPENDIX A

ST. JOHN'S REGION*



* Boundaries prior to May, 1998 (after this time, the boundaries of the St. John's Region were expanded to include Conception Bay South, which was previously part of the Eastern Region)

APPENDIX B

Provincial Department of Health Eligibility Criteria for the four levels of care

LEVEL 1

PERSONAL FUNCTIONS	• independently mobile, with or without mechanical aids, inclusive of a wheelchair • may need specialized aids for independently transferring • may require limited assistance with bathing, dressing, and/or grooming • may require reminder for routine toileting • may require minimal assist with toileting • may require nutritional monitoring • may have sensory deficit with interferes with ADLs and may or may not require minimal assistance
MENTAL/ SENSORY/ PERCEPTUAL	• may have full use of mental functions • may have a sensory/perceptual deficit but with adaptation will have the ability to be responsive, understand simple instructions, and express needs • may demonstrate mild difficulties in orientation to day, time, and place • may demonstrate mild difficulty with memory and recall • may have inappropriate behaviour which does not interfere with other people
MEDICAL STATUS	• may have medical problems that are stabilized and do not require daily professional supervision • may require accompaniment for (doctors, dentists, specialists, etc.) visits • may require therapies (i.e. oxygen concentrator, ventolin masks) or procedures (i.e. colostomies) and is able to independently complete care required

LEVEL 2

PERSONAL FUNCTIONS	• may be independently mobile, with or without mechanical aids, inclusive of a wheelchair • may need specialized aids for one person assist for transferring • may require a moderate amount of assistance with bathing, dressing, and grooming • may require reminder of and/or assistance with routine toileting to avoid frequent incontinence of bowel and/or bladder • may need occasional fleet enema, as directed by a physician • may require nutritional monitoring and/or assistance with eating • may have sensory deficit with interferes with ADLs and may or may not require moderate assistance
MENTAL/ SENSORY/ PERCEPTUAL	• may have mental functioning with moderate cognitive impairment • is responsive to verbal stimuli; may have some difficulty with simple instructions, number and time concepts • may have sensory/perceptual deficit but even with adaptation needs assistance for understanding and expressing needs • may tend to pace or wander in own environment, but is not at risk for elopement • may demonstrate inappropriate behaviour which may interfere with other people, which can be stabilized
MEDICAL STATUS	• will require professional monitoring • may require therapies (i.e. oxygen concentrator, ventolin masks) or procedures (i.e. colostomies). Requires assistance to complete task. May require assistance with set up and/or cleaning of equipment

LEVEL 3

PERSONAL FUNCTIONS	• is dependent for transfer or mobility • requires assistance to turn and move about in bed • is dependent for assistance with dressing, washing, grooming and bathing • has incontinence of bladder and/or bowel • requires supervision and assistance with eating or requires feeding • requires daily professional care • may have sensory deficit with interferes with ADLs and requires ongoing assistance
MENTAL/ SENSORY/ PERCEPTUAL	• may have severe cognitive impairment • may have a sensory/perceptual deficit and even with adaptation needs ongoing assistance for understanding and expressing needs • may present with management problems due to behaviour, i.e. wandering, aggressiveness, hostility • may demonstrate varying degrees of difficulty with orientation to place or person
MEDICAL STATUS	• has medical problems which require continuous supervision and may require frequent professional intervention

LEVEL 4

PERSONAL FUNCTIONS	• see Medical Status Level 4
MENTAL/ SENSORY/ PERCEPTUAL	• only responsive to tactile or painful stimuli or is non-responsive • see Medical Status Level 4
MEDICAL STATUS	• may be technologically dependent

N.B. For the purposes of our study, the highest level of Dept of Health care is referred to as level 3 (but is actually a combination of the Dept of Health levels 3 and 4)

APPENDIX C

Resource Utilization Groups (RUG-III) (adaptation for our study)

HIERARCHICAL CATEGORIES (highest to lowest care requirements)	***DESCRIPTION***
1. Special Rehabilitation (physical, occupation or speech therapy) 4 subcategories:	• Very high: ≥ 450 minutes at least 5 days per week of one type of therapy, and at least two of the three therapies provided • High: ≥300 minutes per week, and at least 5 days per week of one type of therapy • Medium: ≥ 150 minutes per week, and at least 5 days per week of rehabilitation therapy • Low: ≥ 45 minutes per week, at least 3 days per week of rehabilitation therapy, and at least two types of nursing rehabilitation occurring at least 5 days per week
2. Extensive Services One of the following:	•Parenteral feeding •Suctioning •Tracheostomy •Ventilator/ respirator
3. Special Care One of the following:	•Burns •Coma •Fever, with vomiting, weight loss, pneumonia, or dehydration •Multiple sclerosis •Pressure ulcers (stage 3 or 4) •Quadriplegia •Septicemia •Intravenous medications •Radiation treatment •Tube feeding
4. Clinically Complex One of the following:	• Aphasia • Aspirations • Cerebral palsy • Dehydration • Hemiplegia • Internal bleeding • Pneumonia • Stasis ulcer • Terminal illness • Urinary tract infection

	• Chemotherapy • Dialysis • ≥4 physician visits per month • respiratory or oxygen therapy • transfusions • wound care other than pressure ulcer care, including active foot care dressings OR: Residents who meet the criteria for the extensive services or special care categories but who have a RUG-III ADL index score of 4 to 6
5. Impaired Cognition Cognitive impairment on all 3 dimensions listed:	• decision making (not independent) • orientation (any problem recalling current season, location of own room, staff names of faces, or that he/she is in a nursing home) • short-term memory
6. Behaviour Problems Display daily problems with:	•inappropriate behaviour •physical abuse •verbal abuse •wandering OR with • hallucinations
7. Reduced Physical Functions Do not meet any of the above Criteria, but have a RUG-III ADL Index Ordinal Scale Score of ≥11	<u>RUG-III ADL Index Ordinal Scale</u> (4 indicators – total score of the 4 ranges from 4 (completely independent) to 18 (high)) Bed mobility, toilet use, and transfer: 1. independent or supervision 2. limited assistance 3. extensive assistance or total dependence: other than 2-person physical assist 4. 2 or more persons physical assist Eating: 1. independent or supervision 2. limited assistance 3. extensive assistance or total dependence

* For the purposes of our study, we designated RUG-III level 1 as need for NH level 3, RUG levels 2/3 as NH level 2, and RUG levels 5/6/7 as level 1 (SC), and no RUG criteria as no need for placement in NH or SC

APPENDIX D

Alberta Resident Classification System (ARCS) (adaptation for our study)

Clients are classified according to specified combinations of functional deficits in the areas of ADLs (Activities of Daily Living; eating, dressing, toileting, transferring), BDLs (Behaviours of Daily Living; ineffective coping, potential for injury to self and others) and CCLs (Continence indicators; urinary or bowel incontinence).

Category definitions (A-G from lowest to highest functional impairment) incorporate several combinations of ADL requirements, BDL requirements and CCLs.

Weights were assigned to each category based on the differences in functional disability and resulting required nursing resources. The weights were standardized and Category A was given a weight of 1.00.

A	1.00
B	1.40
C	1.93
D	2.26
E	2.90
F	3.40
G	5.18

Hence a Category C client requires approximately 1.93 times as much nursing care time as a Category A client, and a Category G client requires 5.18 times as much.

CATEGORY	DEFINITION
A	• Low ADL requirements, low BDL requirements and none-medium incontinence problems • Little to no functional impairment • Require minimal supervision, but may require a supportive environment to optimize their function • Examples: clients appropriate for independent living
B	• Low ADL requirements, medium-high BDL requirements, or low-medium ADL requirements and low-medium BDL requirements (higher BDL requirements are offset by lower ADL requirements in this category) • Clients with the highest level of incontinence are excluded • Examples: clients with minor disability who require rehabilitation; clients with mild cognitive impairment
C	• Lowest ADL requirements with highest BDL requirements, low-medium ADL requirements with high BDL requirements, and medium ADL requirements with low-medium BDL requirements (the BDL requirements are higher for any given ADL level than they are for Category B) • Clients with the highest level of incontinence are excluded • Examples: Clients who have had a mild-moderate CVA but require emotional support
D	• Clients whose combined ADL requirements and BDL requirements would have put them in Categories A, B or C but who have incontinence of both bowel and bladder • Clients with no or occasional incontinence if they have low-medium ADL requirements and very high BDL requirements, medium ADL requirements and high BDL requirements or medium-high ADL requirements and low-high BDL requirements • Examples: younger CVA; MS
E	• Clients with lower ADL requirements must have either medium-high CCLs or very high BDL requirements • Clients with low-medium ADL requirements only if very high BDL requirements and need management or retraining for urinary incontinence • Clients with medium ADL requirements and high BDL requirements and urinary incontinence • Clients with no-low incontinence only if they have very high BDL requirements • Medium-high ADL requirements, whether or not they have incontinence, if they do not have very high BDL requirements • Examples: very frail, moderate-severe dementia; alcoholic with Korsakoff's syndrome
F	• Highest ADL requirements who also have incontinence • Without the highest ADL requirements, a client could fit into Category F if there are behaviour problems • Clients with very high BDL requirements are not included unless they have lower ADL requirements • Examples: severe dementia; bed-bound; palliative care
G	• Highest BDL requirements and medium-high ADL requirements (those with medium-high ADL requirements must also have incontinence) • Examples: advanced MS, ALS, Huntington's Disease